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VISCERAL SYPHILIS *

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Visceral syphilis is not limited to the tertiary stage. Lesions of the viscera may occur during the secondary period of syphilis, but visceral syphilis occurs chiefly in the tertiary period.

Clinical evidence of visceral syphilis occurs more frequently in disease of the liver or heart and blood-vessels than of any other organs of the body. Fever of a septic remittent or intermittent type is not an infrequent event. It is not unusual to find chills, fever and sweat resembling malarial fever. Indeed, the fever of visceral syphilis is frequently mistaken for malaria, tuberculosis, typhoid fever or rheumatism. The fever will frequently recur at intervals over years of time. Gummas are usually the source of such fevers and the fact that a gumma may spontaneously heal and disappear, and, especially if the patient is put to rest, is not usually recognized. While the condition may be obscure in these febrile conditions, a thorough examination, including a close survey of the liver and other organs of the body, the serum Wassermann test and the use of mercury and the iodids will frequently clear up the diagnosis.

Syphilis of the respiratory system is not of common occurrence. The trachea, the bronchi and the lung may be involved. A congenital syphilis of the lung in the form of a white pneumonia, described by Virchow, is not of frequent occurrence. Those whose practice is limited to the diseases of children frequently recognize the disease. Usually it is fatal. Acquired syphilitic infection of the trachea, bronchi and the lung is of such infrequent occurrence that it does not come within the experience of the general practitioner and is seen only as a rare event in a rather large hospital practice. Gummas resulting in ulcer or in scars and contraction of the trachea and bronchi are sometimes found and recognized by concurrent evidence of syphilis elsewhere in the body, or by the improvement from the use of antisyphilitic treatment. The symptoms are not at all characteristic, usually consisting of cough and dyspnea with an expectoration free of tubercle bacilli and evidences of other diseases. Acquired syphilis of the lung usually occurs in the form of gummas near the hilum or sometime within a lobe. Cough with chills and an intermittent type of fever, rather profuse expectoration with enlargement of the superficial lymph-glands as well as those of the mediastinum are usually found. The physical examination may simulate that in tuberculosis or in bronchiectasis. The absence of tubercle bacilli in the sputa, the evidence of syphilis through the history of the patient or evidence of syphilis elsewhere and response to antisyphilitic treatment help to verify a diagnosis.

CASE 1.—*Patient.*—I have seen one patient of this kind: H. S., aged 26, Hebrew, single, traveling salesman, presented himself with a complaint of cough, febrile condition, sweats at night, loss of weight and strength, diminished appetite. At first he denied syphilitic taint. Expectoration was rather profuse and contained mucopus, saprophytic bacteria and no tubercle bacilli.

Examination.—There was a relative dulness over the left upper lung, especially in the region of the interlobular fissure behind, increase of tactile fremitus and voice sounds, bronchovesicular breathing and moist râles, both fine and coarse. Lymph-nodes existed in the posterior triangles of the neck, the supratrochlears and other superficial glands enlarged and firm.

The patient was closely questioned because of the presence of the enlarged lymph-nodes of the postcervical region and of the supratrochlear region. Finally, he admitted an acquired syphilis of five years before with only superficial and inadequate treatment.

Treatment and Result.—The use of inunctions of mercury and a moderate dosage of iodids resulted in surprisingly rapid improvement and a final disappearance of all evidence of local lesion and of symptoms. The patient continued on the treatment for a year and remained well.

A chronic bronchopneumonia is said to occur in the lung of a syphilitic type, but the literature does not contain many examples and I have never seen one that I have recognized.

Tertiary syphilis of the alimentary canal is recognized but is rare. Ulcers of the esophagus following a probable gumma, or by extension from ulcerative processes of the pharynx, occur with resulting difficulties in swallowing or the formation of strictures from the scar contraction.

Diffuse acute gastritis is said to occur and also syphilitic ulcer. Nodular gummata of the stomach are rare, but cases are cited, including descriptions of this condition by Simon Flexner.

Enteritis with swelling of the lymph follicles and enlargements of the mesenteric glands occurs rarely. Ulcers may result from follicular enteritis. Gummas may appear in the mucous membrane of the intestine with resulting ulcer and, if healed, with scar contraction and stricture.

The rectum may be infected directly from the vulva or from condylomata. Ulcers of the rectum of syphilitic origin are more common in women than in men.

The spleen may be enlarged in the early stage of syphilis. Gummas of the spleen are common and one of the sources of fever. Cicatrices of healed gummas are frequently found post mortem. Amyloid degeneration of the spleen of syphilitic origin is seen in patients with syphilitic amyloid liver.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

The liver is the most common seat of visceral syphilis. The syphilitic process may consist of a diffuse interstitial hepatitis with enlargement of the organ, which may occur congenitally. In this condition the liver is large, smooth and the cut surface is of a gray yellow appearance. It may appear early and usually is fatal. The same type may occur in later life, most commonly in adolescence associated with other evidences of syphilis in the form of interstitial keratitis, rhagades, Hutchinson's teeth and sometimes with small stature amounting to infantilism.

A diffuse interstitial hepatitis of the acquired type may occur, which partakes frequently of hypertrophic cirrhosis. In this type the liver is enlarged, smooth and sometimes tender to the touch. There may be a moderate jaundice, and fever of the intermittent type is not infrequent associated with chills and sweats. An atrophic cirrhosis with recurring ascites may also occur in acquired syphilis. This may be a later stage of the hypertrophic form. Gummas may appear in the hilum of the organ and by pressure on the portal vessels produce ascites.

The lesion may consist of gummas in the form of tumors measuring from 2 mm. in diameter to the size of a fetal head. They may be single or multiple. These tumor masses may produce enormous enlargement of the organ. There may be jaundice. Usually there is an intermittent or remittent type of temperature with or without chills, and frequently there are night sweats. There may be great tenderness and spontaneous pain. With small gummas the clinical phenomena may last for a variable period and disappear. Recurrences over years of time are not unusual. Lessened strength, endurance and loss of weight and a muddy complexion are of frequent occurrence. Gummas situated near the blood-vessels or gall-bladder may simulate other diseases. The following case is an example:

Case 2.—*Patient.*—L. S. S., aged 37, railway engineer, contracted lues in 1897. In June, 1898, he noticed dull pain in the border of ribs in the region of gall-bladder. This was aggravated by motion. Sometimes after meals he experienced severe attacks of colicky pain radiating from the right hypochondrium. He had also suffered from chill, fever, sweat and jaundice. There was some nausea with these attacks. The paroxysms of chill, fever, sweat and pain occurred at irregular intervals during 1898 and then there was a period of relatively good health.

Examination.—On Sept. 29, 1899, the patient was first examined. His weight was 145 pounds, a loss of 20 pounds. A slight coating of the tongue. No enlargement of lymph palpable glands. The lungs and heart presented no abnormal condition. The liver was moderately enlarged and easily felt below the costal edge. The border was smooth, rounded, slightly resistant, and very tender to the touch. A mass could be felt in the region of the gall-bladder. The urine (specific gravity 1.020) contained a trace of bile, no albumin, no sugar, no casts. The blood showed no plasmodia; 9,000 leukocytes per c.c.

Operation and Result.—A diagnosis of calculous cholecystitis was made and the patient was sent to Mercy Hospital where he was operated by Dr. Christian Fenger. Multiple gummas of the liver were found; the largest one situated just behind the gall-bladder, which was infected by the gumma. No gall-stones were present. The patient rapidly recovered from the operation and made a rapid improvement with the use of inunctions of mercury followed by potassium iodid. The absence of syphilitic lesions of the superficial glands, skin, etc., and the typical symptoms of gall-stones due to the infection of the gall-bladder from a gumma, led to a wrong diagnosis.

The following cases are examples of gummas of the liver existing for a long period of time and unrecognized:

Case 3.—*Patient.*— M. E. C., aged 54, presented himself Sept. 2, 1907. He had suffered from malaria while living in the south in 1887. Otherwise had rugged health until two years ago. Then illness developed in the form of fever with a temperature of 101 or more at night, sometimes preceded by chill and in the night the fever disappeared with a sweat. The morning temperature was either normal or subnormal. Medical care did not benefit him. The following summer was spent in Canada at the seashore. During this time the fever disappeared to recur the next fall with purpura of the legs. During this period he took quinin for what was supposed to be malaria, although no plasmodia were found in the blood. Following the purpura, copper-colored pigment spots remained in the skin. The summer of 1906 he spent in Europe and for a part of the time at Vichy, France, where he was sent by a physician of Paris. There the condition improved without anything but general treatment. On the return voyage fever developed, which confined him to his bed during September and October. Then he was up and about again with a return of fever in December, 1906. This relapse of December, 1906, disappeared after general treatment with quinin and rest during January and February, and the patient remained well until July, 1907. Again fever appeared and continued until Sept. 2, 1907, the date of the first examination; then he had fever usually of 101 or more every evening, a normal temperature in the morning and sometimes a chill preceding the temperature of afternoon and a sweat at times in the night. He had lost a great deal in weight, from 178 pounds (maximum) to 132. His appetite was poor, and he was troubled with a good deal of flatulence. The bowels were constipated; patient had had hemorrhoids for years which often bled. He had no disturbance of the urinary tract; denied venereal disease. He used whiskey largely, as much as fifteen drinks a day at times.

Examination.—Patient looked ill and sallow; there was no subcutaneous fat; the muscles were flabby. There were no lymph-gland enlargements. Lungs and heart were normal; spleen palpable at the end of deep inspiration. The liver was tender and enlarged, projecting 2 or 3 cm. below the costal edge; surface smooth excepting at one point where a nodule in the right lobe could be felt. The whole organ was tender to the touch. Stomach tympany extended to the umbilicus. Rectum congested and many hemorrhoidal tumors appeared with the use of the speculum. Urine: a specimen, clear, specific gravity 1.015, acid, a faint trace of albumin, a trace of bile pigment, no sugar, a few hyalin and faintly granular casts. The blood: hemoglobin 70 per cent. (Dare), reds 4,800,000, whites 9,000. No plasmodia were found in either fresh or stained specimens of the blood.

Treatment and Result.—In spite of the fact that the patient denied syphilis, a diagnosis of probable gumma with interstitial hepatitis of syphilitic origin was made and he was treated at the Presbyterian Hospital, Chicago, for about six weeks by the deep intramuscular injections of bichlorid of mercury in the dose of 1/6 to ⅓ gr. given every day or every other day. Following the use of 20 injections of mercury he was given gradually increasing doses of potassium iodid. Under this treatment there was a rapid subsidence of all symptoms and of the evidence of visceral disease. The improvement was phenomenal, the patient rapidly gaining in strength and weight and a full restoration to health. The patient has remained so until the present time. A recent communication from him includes the statement that his weight is the full normal and he is entirely well. Subsequent to his treatment in the Presbyterian Hospital his physician carried out similar treatment at periods during 1908 and 1909.

Case 4.—*Patient.*—C. K., aged 60, married, railway business, presented himself on Dec. 24, 1904. He had contracted lues fifteen years previously. For ten years he has had disturbance of the stomach in the form of pain in the epigastrium, of a cramping character which came on soon after taking food. The pain sometimes is relieved by an aromatic drink. The pain is dull and sometimes griping in character. Recently he had used a stomach-tube which has diminished

the attacks and usually immediately relieved him. No analyses have been made of the stomach condition. A year before examination he suffered from what was described as ulcer of the mucous membrane of the nose for which he received local treatment and was also given some potassium iodid. Recently, the pain in the epigastrium had recurred and was not relieved by lavage. There was an occasional chill with slight fever and sweat but these febrile attacks were not continuous.

Examination.—The patient's general appearance was healthy, and general nutrition good. There were no palpably enlarged lymph-glands. Throat was normal; lungs negative; the left heart border dulness extended to the left nipple. The apex-beat was normally situated, the heart action regular. The aortic second tone was accentuated. There was no palpable thickening of the blood-vessels. The arterial tension was 140. The liver was palpably enlarged, projecting 5 to 7 cm. below the costal edge. It was smooth, firm and tender to the touch. A distinct mass could be felt in the right lobe near the region of the gall-bladder. The spleen was not palpable. Stomach tympany extended to the umbilicus. Pupillary and patellar reflexes were normal. Temperature was 100.8, pulse 90, respiration normal. Blood: 3,800,000 reds, 60 per cent. hemoglobin (Dare), 17,400 leukocytes with polynuclears predominating. Urine: a specimen, 1.015, acid, trace of albumin, a few hyalin and finely granular casts. A twenty-four-hour urine amounted to 1,000 c.c., specific gravity 1.015. An Ewald meal showed a total acidity of 28, free hydrochloric acid 15, combined 13, no lactic acid, no blood, no increase of leukocytes.

Treatment and Result.—The patient was given deep intramuscular injections of salicylate of mercury in the dose of 1 grain every day or every second day and after twenty injections was given potassium iodid in the dose of 15 to 30 grains, three times a day. Immediate improvement followed the mercurial treatment with a rapid recovery to good health. The patient not only was restored to a good condition of health but all stomach symptoms disappeared and have remained absent to the present time. A recent Wassermann test was negative.

CASE 5.—*Patient.*—F. B. S., a German-American, 38 years of age, a clerk by occupation, presented himself on Jan. 5, 1905. He complained of great general weakness, poor appetite, heaviness and fulness in the stomach after meals, a sense of weight in the right hypochondrium with soreness, pain in the right side and a fever every day in the late afternoon with occasional sweats at night. He had contracted lues fourteen years previously and had taken treatment for it off and on for years.

Examination.—The patient was a man of good physique with poor general nutrition, a muddy complexion with slight yellowness of conjunctiva. The temperature was 100, the pulse 90, no palpable glandular enlargements. The mucous membranes were rather pale, the tongue moderately coated. The throat and lungs were normal. The heart presented no abnormal signs. The liver was distinctly enlarged, projecting 5 or 6 cm. below the costal edge, and was somewhat firm and tender. In the parasternal line there was a distinct mass in the right lobe. The spleen was not palpable. There was a spindle-shaped swelling of the right femur at the junction of the middle and lower thirds. It was nodular, tender and was painful when the patient attempted to walk. An *x*-ray examination of the thigh showed a swelling of the shaft of the bone which involved not only the periosteum but the bone itself. The blood examination showed 63 per cent. hemoglobin (Dare), 4,200,000 reds, 10,000 whites. The urine: 1.015, a trace of albumin and a few hyalin and granular casts.

Treatment and Result.—The patient was treated at the Presbyterian Hospital for three weeks. During this time he was given deep intramuscular injections of 1 grain of salicylate of mercury every day followed by potassium iodid in the dose of 10 to 30 grains three times a day. Immediate improvement followed the use of mercury and continued uninterruptedly until all evidence of disease disappeared and on April 27, three and a half months after he was first seen, he presented no physical evidence of disease and showed a gain in weight of 20 pounds. He has been under observation since then and has had a series of injections of mercury for two periods and the use of the iodid after the injections. He remains entirely well.

Many other cases could be cited, as this form of visceral syphilic is very common.

There can be no question that diffuse interstitial hepatitis of a chronic type is of rather frequent occurrence and when treated in a general way develops into a cirrhotic atrophic type. Early antisyphilitic treatment would in many instances cure such patients. The scarred liver, the result of gummas, or the botryoid liver consisting of deep fissures comprised of dense bands of connective tissue partially or completely separating portions of the liver into small lobules, is usually without symptoms. Such a type of liver usually is a sequel of syphilis of the liver either congenital or acquired, or may be a latent manifestation.

SYPHILIS OF THE KIDNEYS

Syphilitic nephritis is a recognized entity. It usually occurs in the secondary stage, but may develop later. Nephritis of this type is frequently aggravated by the use of both mercury and the iodids. The symptoms and urine condition are those of a chronic parenchymatous or sometimes of the interstitial type of nephritis. Frequently, one is obliged to cease the use of mercury or of the iodids because of the aggravation of the condition brought about by their use.

This is not surprising when one knows that mercury is excreted by the kidney and may be found in the urine as late as one year after the use of that drug, especially by the intramuscular injection method. Syphilitic nephritis may lead to an early death, may develop into a chronic type and continue as ordinary nephritis even when all syphilitic disease is apparently eliminated.

Amyloid kidney is of syphilitic origin, is of rare occurrence and gummas of the kidney are rare.

SYPHILIS OF THE HEART AND BLOOD-VESSELS

The toxin of syphilis falls with unusual severity on the heart and blood-vessels. The morbid phenomenon occurs in the following forms:

1. In the form of nodular para-arteritis which may involve any of the small arteries of the body, but occurs most frequently in the arteries of the circle of Willis.

2. As an acute gummatous endarteritis of vessels of medium size and sometimes of large ones of the brain and also of the aorta. This is the type in which perforation of the arterial wall may occur and when it involves the aorta results in sudden death.

Such a case I have had in a man 37 years of age, who suffered from syphilis eight years before. He had inadequate treatment because he would not submit to the necessary discipline and consequently suffered from frequent manifestations of syphilis, especially of the bones of the legs, head, etc. Without evidences of circulatory disease he suddenly developed dyspnea and in attempting to walk up a moderate-sized hill was seized with great pain in the precordium with a sense of suffocation and died within a few hours. Post-mortem revealed perforation of the aorta in the first portion of the arch and hemorrhage into the pericardium. The perforation was due to gummatous endarteritis.

3. Obliterative endarteritis involving small blood-vessels of the brain and elsewhere of the body, especially of the coronaries. This condition of the coronary arteries

frequently results in fibrous myocarditis and development of heart inadequacy and with anginal attacks in the young, sudden deaths may supervene.

4. Syphilitic arteritis usually confined to the larger blood-vessels and especially to the root of the aorta and manifested by the easily recognizable changes in the intima and media. Gumma may occur in the heart-wall and interfere with the conductivity of the muscular fibers. It may appear in the bundle of His and cause heart-block.

RELATION OF SYPHILIS OF BLOOD-VESSELS TO ANEURYSM

It has been estimated that from 20 to 80 per cent. of aneurysms are related to syphilitic disease of blood-vessels. This occurs because of the effect of the syphilitic toxin on the intima, frequently resulting in a splitting of that coat and an undermining of the wall of the blood-vessel in consequence. The general nutrition of the coat of the vessel is further diminished by a not infrequent obliterative endarteritis of the vasa vasorum. A general syphilitic arteritis most frequently affects the root and arch of the aorta and consequently aneurysms are most frequent in that part of the circulatory apparatus. Aneurysm may appear long after the initial infection. In recent time the *Spirochæta pallida* has been found in late syphilitic lesions of the aorta and explains the progressive nature of such lesions and resulting aneurysm.

The heart itself may show lesions in the form of verrucose endocarditis. The aortic valves may be involved with resulting aortic insufficiency. Not infrequently in this condition the coronary vessels are involved with resulting myocarditis and anginal attacks.

Syphilis of the heart and of the blood-vessels may be modified by antisyphilitic treatment, but unfortunately the good results of such treatment on other organs is not so fully realized.

DIAGNOSIS OF VISCERAL SYPHILIS

This may be difficult at times and especially diagnosis of the lesion of organs which are rarely involved. The more commonly involved organs, the heart, blood-vessels, liver, spleen and kidneys, present evidences of syphilitic disease which may be very obscure, and on the other hand may be easily recognized.

The presence of a septic temperature of a remittent or intermittent type, associated with chill, fever, sweat, occurring at irregular periods with intervals of latency manifested by improvement and apparent health, should arouse one's suspicions of syphilis. The condition may be mistaken for tuberculosis or malaria more frequently than any other febrile condition. The fact that so many people deny syphilis and that others are ignorant of the presence of the infection makes it a little more difficult. I think, however, that one should not consider such negative evidence. If a most careful examination fails to show positive evidence of syphilis, one may utilize the Wassermann serum test and the mercury-iodid therapeutic test with satisfactory results as a rule. Careful blood examinations will exclude malaria, and the tuberculin test may be used in afebrile conditions with comparatively satisfactory results.

The prognosis of visceral syphilis will vary with the condition. A thoroughly carried out treatment in syphilis of the liver of the acquired form is usually very satisfactory. In disease of the kidney one may modify the condition, but the damage done to this important organ prevents entire recovery. Syphilis of the myocardium may be also benefited by mercury and the iodids; and gummas of the heart, if not destructive of some important part like the bundle of His, may be dissipated by medication. Syphilis of blood-vessels of all types may be improved by brisk mercurial and maximum iodid treatment, but one is never sure of the result until the medication has been tried. In aneurysm, progressive disease of the blood-vessels due to latent syphilis may be somewhat modified by specific treatment, but a damaged blood-vessel cannot be restored to its original condition.

TREATMENT

Mercury remains the best specific medication in syphilis of all stages. It may be used by mouth, by inunction, by deep intramuscular injection or intravenously. The deep intramuscular injections offer a most satisfactory and easily controlled method of giving a maximum amount of the drug. I think that it is the consensus of opinion that the drug should be administered for periods of from fifteen to twenty-five injections, daily or every second or third day and repeated again after an interval of three or four months until the patient is cured. The iodids are of value to dissolve and throw out of the body the morbid material of syphilitic infection. The iodids are of special value in gummatous disease. The dose may be small and give satisfactory results in some instances, and in others it must be maximum amounting sometimes to 300 or 400 grains in twenty-four hours. The drug should be administered at periods like the mercurial treatment. In my experience the best results are obtained by using the iodid in periods when the mercury is not used. Salivation is less likely to occur than when the two are used coincidently.

Salvarsan is undoubtedly of great value in early syphilis and in syphilis with gummatous infiltration and ulceration. The fact that it will aggravate the morbid condition of a heart, blood-vessel or a kidney disease prohibits its use in those conditions. The fact that the best results are obtained in maximum dose by the intravenous method makes its use limited because of difficulty of giving it excepting by those who have a proper technic. A maximum dose of salvarsan followed by mercury is of undoubted value.

Mercury and the iodids have long been used with great satisfaction and we may continue to use them with gratifying results. I doubt very much if salvarsan will give us any better results than the rational use of mercury and iodids. Exceptions may occur in which salvarsan may prove a better remedy. The discovery of salvarsan and its undoubted specific effect on the spirilla warrants the hope that other drugs may be found of even greater specific action in syphilis and other diseases caused by these organisms.

122 South Michigan Boulevard.

Insurance of Babies Against Tuberculosis.—The Danish post-office official who is said to have first suggested the use of Christmas stamps to raise money for the campaign against tuberculosis, now proposes another scheme for the same purpose, namely, the insurance of infants against tuberculosis. On the birth of every child its parents are to pay 25 cents as insurance against tuberculosis. If the child should happen to develop tuberculosis it is to be entitled to free treatment at the age of 6 in the institutions founded by the insurance money. As the sale of Christmas stamps in Denmark is so satisfactory, there is no question of adopting Mr. Holbll's suggestion there, but it is heralded in the Italian journal, *Tubercolosi*, as a "happy idea from Denmark," and our exchange adds that the national league in Sweden against tuberculosis proposes to adopt the insurance scheme, the local authorities paying the single premium at need.

LABORATORY DIAGNOSIS OF SYPHILIS *

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Laboratory aids to the clinical diagnosis of syphilis have developed rapidly since the announcement by Schaudinn and Hoffman[1] in 1905, of the *Treponema pallidum* as the probable causative agent. Prior to that time the rarely used Justus test (increase of hemoglobin after the administration of mercury) was the only laboratory procedure. A subject so vast and important can be approached from many sides, the more important being the technical, clinical and experimental. Therefore, it will be necessary to limit this paper to those of more general and practical use, and to avoid long technical descriptions; in other words, to present to the general practitioner the value and limitations of the various laboratory methods, rather than to dwell on the means of carrying them out.

SMEARS

This was the first method used generally for the purpose of demonstrating the presence of the *Treponema pallidum*. Many stains and mordants have been used. These divide themselves into two general groups: first, the more intense anilin dyes together with various mordants and, second, various modifications of the Romanowsky stains. I find the following method exceedingly satisfactory, but I do not wish to be considered as limiting the satisfactory methods to the one described.

The smears are first fixed in the fumes of osmic acid, then immersed in a weak solution of potassium permanganate as a mordant, washed in distilled water and covered with Giemsa stain diluted 1 to 10. They are heated on a copper plate for twenty minutes; the slides are then washed in distilled water and dried in the air.

By this method the treponemas are stained deep purple.

Stearns' silver method stains the treponemas a deep black but distorts their outline somewhat. In addition, it is very difficult to obtain a solution of silver nitrate that will not precipitate a granular film on the smear.

Another method generally used on account of its extreme simplicity and rapidity is that described by Burri[2] in 1909, commonly known as "the India ink" method. A loopful of serum obtained from the lesion is mixed with a loopful of good India ink, preferably the Chin-Chin liquid pearl ink, and the mixture is rapidly spread over the slide as in making a blood-smear. After the film dries it is examined under an oil immersion lens, without mounting. The field appears as a brown or black background in which the treponemas, blood-cells, etc., stand out as colorless refractive bodies. Objection has been raised by Barach[3] to this method. He states that certain inks contain extraneous fibrils which resemble in form the treponema. I have never noticed this, but the fact that the presence or absence of the treponema must be determined not by finding the microorganism but by seeing the unstained space which it occupied and that these spaces are often distorted in shape, appears to be a valid objection to this method.

The *Treponema pallidum* and the *Spirochæta refringens* can easily be differentiated by this method, but it is impossible to distinguish between the *Treponema pallidum* and the *Treponema dentium*. This applies, however, only to smears taken from lesions of the mouth.

SECTIONS

In making sections of syphilitic tissue there is no doubt that the Levaditi method (impregnation with nitrate of silver) is best in tissues from hereditary syphilis, and that the Levaditi and Manouélian method is preferable in all other syphilitic tissues.

FRESH SPECIMENS

By far the best method of finding *Treponema pallidum* is in fresh preparations by means of the dark-field condenser. When using this method as well as when making smears, great care must be taken in obtaining the material. No antiseptic solutions should be used prior to the examination. In primary lesions the surface is first washed with normal salt solution, and anesthetized, if necessary, with novocain and epinephrin, locally. The entire indurated area is then picked up with a long-pointed hemostat and squeezed until the tissue becomes blanched. Then the surface is scraped until a clear serum exudes, and from this serum the slides or smears are made, diluting with normal salt solution if necessary.

Serum can be obtained from secondary syphilids by first applying a Bier cup and then proceeding as above.

In lesions of the mouth the surface is rubbed thoroughly with normal salt solution and curetted, the upper surface being entirely removed before making the slides for examination.

Although I have attempted it frequently, I have never been able to demonstrate the presence of treponemas in the blood either in fresh specimens or smears. The advantages of the dark-field method are its quickness and its reliability. In a number of instances the treponemas have been demonstrated in the dark field in large numbers, while smears from the same lesion stained with Giemsa and India ink show but a few or none present. The advantage of an early diagnosis is shown by the following cases:

CASE 1.—*Patient.*—Mr. M., Dec. 30, 1910. Clinically, a typical chancre of penis of three weeks' duration; glands palpable in both groins; no *Treponemata pallida* found by dark field or smears. Wassermann negative. Frequent examination revealed no *Treponemata pallida*.

Jan. 18, 1911.—Without treatment, the primary sore almost entirely disappeared, the inguinal glands became smaller. A Wassermann reaction was negative. Up to the present time absolutely no clinical signs have manifested themselves. The patient at no time had any anti-syphilitic treatment, nor was the sore treated in any way except with boric acid.

CASE 2.—*Patient.*—Mr. R., Feb. 13, 1911: There was a slight indurated sore in the sulcus; the glands on the right side were enlarged and tender; examination under dark field showed many treponemas present.

Feb. 14, 1911.—0.5 gm. salvarsan administered intravenously.

Feb. 15, 1911.—No *Treponemata pallida* were found under the dark field.

Up to the present time no further clinical signs have manifested themselves. The Wassermann reaction was negative before the administration of salvarsan, positive ten days after the injection, negative twenty-four days after the injection, and has remained negative ever since.

CASE 3.—*Patient.*—Mr. A., April 18, 1911: The patient had a chancre of eight days' duration. Many *Treponemata pallida* were found in the dark field. On the same day the chancre was excised and 0.5 gm. salvarsan given intravenously. Up to the present time, no secondary rash or other manifestations have developed. A Wassermann reaction was positive before the administration of salvarsan and weakly positive ever since.

* From the Serological Laboratory, University of California Hospital.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Schaudinn und Hoffman: Arb. a. d. k. Gesdhtsamte., 1905, xxii, 527.

2. Burri: Das Tuschererfahren als einfaches Mittel zur Lösung einiger schwierigen Fragen der Bakterioscopie, Jena, 1909.

3. Barach: Warning Against the India-Ink Method for the Spirocheta Pallida, THE JOURNAL A. M. A., Nov. 26, 1910, p. 1892.

SERUM DIAGNOSIS

The diagnosis of syphilis by the above-mentioned methods is naturally confined to the early stages of the disease. By means of the Bordet-Gengou[4] complement fixation reaction, as described first in this connection by Wassermann, Neisser and Bruck,[5] another method of laboratory diagnosis has been added to the physician's armamentarium. The consensus of opinion at the present time is that this reaction in syphilis is a specific antigen-antibody combination in which the antigen used is closely related to the lipoid substances, and in which the antibodies react not alone with the specific syphilitic antigen but also with some of the constituents of normal tissue. It is probable that the substances which owe their origin to the luetic infection possess a certain chemical relationship to lecithin.

On account of the complicated technic of this reaction many investigators have attempted to modify and simplify it. The Noguchi[6] method is best known in this country and appears to be of sufficient value to be used instead of the method described by Wassermann. It also eliminates one source of error by the use of an anti-human amboceptor and furthermore requires a smaller amount of blood-serum. This becomes quite a factor when endeavoring to obtain a sufficient amount from infants. In a long series of cases in which both the Noguchi and the Wassermann systems have been used the results were parallel when the same antigen was employed.

In obtaining blood for these reactions a tourniquet is applied to the arm and one of the superficial veins of the forearm is punctured with a dry, sterile needle. About 5 c.c of the blood are permitted to flow into a clean test-tube and allowed to coagulate in the position of an agar slant. The tube is then turned over and the clear serum separated from the clot without the need of a centrifuge. In children, and in people with small superficial veins, the blood is collected from the finger in a Wright's tube. Care must be taken that in collecting the patient's blood no alkaline or acid liquids come in contact therewith. The serum should be kept on ice until ready to use, a badly infected serum may give erroneous results. If an acetone-insoluble antigen is used, the serum can be employed in both an active or inactive state.

The antigen used in the laboratory, in both the Wassermann and the Noguchi systems, is made from syphilitic or normal human heart and liver extracted with alcohol, fractionated with acetone, and then dissolved in methyl alcohol. It is titrated by the method described by Noguchi. An antigen can be obtained from either syphilitic or normal tissue, but from my experience it appears that the percentage of good antigens obtained is greater when syphilitic material is used. It must be remembered that the reaction is a quantitative one and an exact proportion must be maintained between the various reagents. Great care is necessary in selecting a proper antigen and the variation in results reported by different workers is frequently due to the use of an improperly made and titrated antigen.

For those working continuously with the complement fixation reaction, there appears to be no advantage in the use of antigen and amboceptor dried on filter paper. Experiments with these papers, when controlled with liquid reagents, have shown that those papers impregnated with antigen will not keep as long as a liquid extract maintained in the ice-box.

4. Bordet-Gengou: Ann. de l'Inst. Pasteur, 1901, p. 289.
5. Wassermann, Neisser and Bruck: Deutsch. med. Wchnschr., 1906, xxxii, 745.
6. Noguchi: Jour. Exper. Med., 1909, xi, 392; Serum Diagnosis of Syphilis, Ed. 2., 1911.

DIAGNOSTIC VALUE

Reports of the diagnostic value of the complement fixation reaction varies greatly with different workers. In a series of 1,350 cases my results have been as follows:

	Percentage +
Primary syphilis	93
Secondary syphilis	97
Tertiary syphilis	82
Hereditary syphilis	100
Early latent syphilis (Treated and untreated)	56
Late latent syphilis (Treated and untreated)	60
Tabes	77
General paresis	98
Cerebrospinal syphilis	71

In a total of 142 cases, from which syphilis could not be excluded as an etiologic factor, the number of positive cases was 106; negative, thirty-six.

In cases from which syphilis can be eliminated as a factor: Total 182: Positive, seven; negative, 175.

Of the positive, six were leprosy and one carcinoma. The presence of hereditary or acquired lues could not be excluded in three of these cases.

The great value of this reaction in the detection of syphilis as an etiologic factor and of latent syphilis has been amply brought out by many investigators. Chronic myocarditis, and aortitis, valvular insufficiency, aneurysm, hemiplegia, adult epilepsy, cirrhosis of the liver, may now be traced to a syphilitic etiology.

In my series there are a number of syphilitic families in which positive reactions were obtained in some of the offspring showing no clinical symptoms.

The reaction is also of great value in the determination of the need of further treatment. Most all observers have found that positive results are more frequent in untreated or insufficiently treated patients.

EFFECT OF TREATMENT

From the literature, and also in my experience, in the majority of cases a positive reaction becomes negative after the administration of a greater or less amount of mercury. In hereditary lues a positive reaction may persist despite the administration of a large amount of mercury and potassium iodid. It may persist after the disappearance of the clinical signs, or it may return after once having become negative, the administration of mercury having been stopped. In a series of 116 cases, in which salvarsan has been administered, the results were as follows:

Twenty-eight patients were given more than one dose; three were given more than two doses. All were positive before administering the salvarsan.

	Per cent. +
End of two weeks	51
End of one month	37
End of two months	18
End of three months	16
End of four months	15
Remained positive to date	18

Returned after once negative, 11 per cent.

CEREBROSPINAL FLUID

The usual methods of examining cerebrospinal fluid for the purpose of determining the presence or absence of syphilis are, cytologic examination, the Nonne[7] ammonium sulphate reaction, the Noguchi[8] butyric acid reaction and the complement fixation reaction. In the main, these reactions have their greatest value in

7. Nonne: Clinical Diagnosis of the Syphilogenous Diseases of the Central Nervous System, THE JOURNAL, July 24, 1909, p. 289.
8. Noguchi: Proc. Soc. Exp. Biol. and Med., 1909, vi, 77.

patients suspected of having tabes, cerebrospinal lues, general paresis, and in psychiatric cases. In using the Nonne reaction I use the ring method of Ross and Jones.[9] In the butyric acid test care must be taken that the butyric acid is fresh and that only a flocculent precipitate, which appears within two hours after heating, is called positive. In carrying out the complement fixation reaction with the cerebrospinal fluid, it has been found by titration that an amount equal to ten times the quantity of blood-serum must be used. The presence of a positive Nonne and butyric acid test indicates an increase in the globulin content of the cerebrospinal fluid, and may be obtained in cases of acute inflammatory meningitis. In tabes I have obtained positive reactions in the cerebrospinal fluid, while the reaction on the blood-serum was negative. This result has also been obtained in several cases of cerebral syphilis.

In a few cases of tabes the globulin content did not appear to have been increased, but the complement fixation reaction was positive. In none of these cases, however, was the cell-count positive. In general paresis the inhibition of hemolysis is almost always absolute.

In tabes, cerebrospinal lues and general paresis the complement fixation reaction should be done both on the blood-serum and on the cerebrospinal fluid, for the syphilitic etiology in some cases may be missed if the blood-serum alone is examined.

The complement fixation reaction with relation to milk, urine, transudates, etc., will not be entered into as they have no practical bearing on this subject.

A large number of modifications of the original Wassermann reaction have been described, but so far, with the exception of the Wassermann and Noguchi systems, all are subject to the same criticism, namely, that indefinite amounts of the amboceptor, complement, and blood-corpuscles are used.

The various precipitate reactions described are not as reliable as the complement fixation reaction.

MEIOSTAGMIN REACTION

Ascoli and Izar[10] utilize the fact that when a specific antigen and a serum containing its corresponding antibody are mixed a lowering of the surface tension of a drop results. This phenomenon has been utilized in the diagnosis of syphilis by first determining the number of drops in a given bulk of patient's serum, and then determining the variation from that number after the antigen has been added to a like quantity. My experience with the stalagmometer of Traube leads to the conclusion that this instrument is too delicate for the use of the general practitioner. The surface tension is changed by so many factors, such as vibration, temperature, specific gravity, etc., making it of little use outside of a well-equipped physical laboratory.

SCHURMANN COLOR REACTION

With a limited number of serums I have been unable to obtain results as noted by Schurmann. A number of definitely negative serums gave a positive reaction.

CONCLUSIONS

1. Examination by the dark-field condenser is the surest and most rapid method of determining the presence or absence of the *Treponema pallidum*.

2. The success with fresh specimens and smears depends largely on the care used and the manner of making the preparations to be examined.

3. The early diagnosis of syphilis becomes more important on account of the advantage obtained in aborting the disease in many instances by the use of salvarsan.

4. Serum diagnosis of syphilis is of great value throughout the course of the disease after the infection becomes systemic.

5. The complement fixation reaction is of value in determining a syphilitic etiology and the effect of treatment.

6. In patients under treatment a negative complement fixation reaction is not of the same value as a positive one in determining the presence or absence of the disease.

7. In certain forms of parasyphilis a negative reaction does not entirely exclude the presence of syphilis.

8. In syphilis of the central nervous system the complement fixation reaction should be done with the cerebrospinal fluid as well as with the blood-serum.

9. Great care should be taken in selecting and making antigens used in the complement fixation reactions. The reaction is a quantitative one and the accuracy of results are dependent entirely on the quantitative relation between the various reagents.

10. With properly selected antigens the Wassermann and Noguchi methods are equally reliable.

9. Ross and Jones: Brit. Med. Jour., 1909, i, 1111.
10. Ascoli and Izar: München. med. Wchnschr., Jan. 11, 1910, p. 62; Jan. 25, 1910, p. 182; Feb. 22, 1910, p. 403; May 3, 1910, p. 954; May 31, 1910, p. 1170

THE VALUE OF THE WASSERMANN REACTION AND OF SALVARSAN*

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I. THE VALUE OF THE WASSERMANN REACTION, BY A. KEIDEL

These observations are based on 378 cases examined by the Wassermann test at the Genito-Urinary Clinic of the Johns Hopkins Hospital. The technic of the test followed the original method of Wassermann, Neisser and Brück, except in the preparation of the antigen, which was made by the method devised by Noguchi from syphilitic livers and from normal beef hearts. The unit of volume was also reduced and a water bath used in place of the air incubator.

Fifty of the cases examined were definitely non-syphilitic, including cases of epithelioma, sarcoma, tuberculosis, Raynaud's disease, scabies, acne, drug-rashes, and about twenty other various affections. In every case the reaction was negative.

There were sixty-four cases of undoubted syphilis with secondary manifestations at the time the test was made and of these 91.4 per cent. gave a positive reaction. Somewhat over half of the cases in this group had received no treatment and were positive, all those with a negative reaction being treated cases.

Of twenty-one cases with undoubted tertiary manifestations 62 per cent. were positive—four cases being doubtful. In all but three cases courses of antisyphilitic treatment had been received.

In twenty-three cases with early primary lesions and demonstrable *Spirochætæ pallidæ* twelve, or 52.2 per cent., were positive and one case was doubtful.

As no diagnosis had been made in most of the cases coming for the serum examination I was interested to note in what percentage the test had been of aid in estab-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

lishing the diagnosis. In order that this may be clearly appreciated I have divided all the cases into five groups, as follows:

1. Non-specific cases. As already stated these were fifty in number, with 100 per cent. negative reaction.

2. Cases in which there were lesions of a doubtful nature and a negative history for syphilis. Of the seventy-one cases in this group, seventeen, or 24 per cent., were positive and three, or 5 per cent., doubtful.

3. Cases in which there were lesions of a doubtful or suspicious nature and an indefinite history of syphilis. This group is made up of sixty-one cases, twenty-three of which, or 37.7 per cent., were positive and two cases doubtful.

4. Cases in which there was a definite history of syphilis but no lesions. Eighty-three cases, twenty-one of which, or 25 per cent., were positive and five doubtful.

5. Cases in which there were suspicious or manifest lesions and a definite history of syphilis. This is the largest group, with 113 cases, of which ninety-three, or 82.3 per cent., were positive and six doubtful.

It was also of interest to note in how many cases in which the patients had venereal sores, a positive diagnosis of chancres could be made with the Wassermann test, in the absence of all secondary manifestations. Accordingly sixty-one patients with sores of from two days' to ten weeks' duration were examined and the results tabulated.

RESULTS IN THE EXAMINATION OF SIXTY-ONE VENEREAL SORES

Duration of sores in weeks	1	2	3	4	5	6	7	8	9	10
Number of cases	11	14	11	11	2	5	3	2	1	1
Positives	3	6	6	7	0	2	0	1	1	0
Negatives	8	8	5	4	2	3	3	1	0	1

This table shows a steady increase in the number of positives from about 27 per cent. in the first week to about 64 per cent. in the fourth week, after which the number of cases rapidly falls off and the results are irregular. The importance of being able to recognize so large a number of chancres in the first week and practically all of them in the fourth week is obvious, but the table also shows that of the small number of venereal sores seen after the fourth week and unaccompanied by secondary manifestations such as a general glandular enlargement, over 25 per cent. may be chancres and can be diagnosed as such by this test.

Notwithstanding the fact that many of these patients had non-specific lesions, 42.3 per cent. gave a positive Wassermann. Of thirty-three cases in which the spirochetes had not been demonstrated, thirteen were positive. One patient had a positive Wassermann when first seen, four days after the appearance of the sore. An attempt was made to follow these cases in order to ascertain how many of them with the negative reaction subsequently developed secondaries. This was attended with small success, however, only six patients returning for observation, and all with secondary manifestations. Of these, three patients had been examined in the first week of the primary stage, two in the second week and one in the fourth week. In this last case the lesion had been treated with calomel powder from the outset.

In conclusion it need hardly be stated that a positive Wassermann test is for practical purposes conclusive evidence of syphilis. It is of scientific interest that the test may be positive in some non-syphilitic conditions such as leprosy, yaws, scarlet fever, and trypanosomiasis, tuberculosis, carcinoma and profound anemias, in none of which the diagnosis can be confused with syphilis, except perhaps in yaws. The only difficulty lies in the correct interpretation of the negative results. This, I am convinced, may be met by careful attention to the technic of the test; by the use of only the highest-powered preparations, skilfully made and accurately titrated and by thorough familiarity with each step undertaken. The amount of treatment the patient has received and the time elapsed since the last treatment was discontinued should be taken into consideration. When the result is in doubt one should not hesitate to make repeated examinations at convenient intervals. With these precautions, I consider a negative Wassermann reaction while not of equal value with a positive result, almost as reliable.

II. THE VALUE OF SALVARSAN, BY J. T. GERAGHTY AND A. KEIDEL

This report is based on a series of seventy cases which came under our observation and care in the Genito-Urinary Clinic of the Johns Hopkins Hospital, and in private practice.

TECHNIC OF THE ADMINISTRATION

Except in the first four cases, all injections were made intravenously into the median basilic, the median cephalic, or one or other of the superficial ulnar and radial veins. The needle was thrust directly through the skin into the vein in almost all cases. Even where the vein was not plainly visible it could readily be made so by the application of a tourniquet, and venesection was necessary in only a few cases on account of excessive subcutaneous fat.

The salvarsan was dissolved in about 100 c.c. of sterile salt solution in a sterile glass-stoppered bottle, and made alkaline with from 1.2 c.c. to 1.3 c.c. of 4-normal sodium hydrate solution, and enough salt solution added to bring the volume up to 240 c.c. so that each 40 c.c. of this solution contained 0.1 gm. of salvarsan. A glass-barrelled, 20 c.c. syringe provided with a two-way stop-cock and connections of small rubber tubing was used, and the injection preceded and followed by a small quantity of salt solution.

Following the injections the patients were kept in bed in the hospital for two days, and then were allowed to resume their ordinary daily pursuits. As far as possible, all patients have been kept under observation and frequent Wassermann tests made, in order that failures and recurrences might be recognized as early as possible, and further treatment promptly instituted.

In the four patients treated intramuscularly the reaction to the drug was marked by most intense pain at the site of the injection, accompanied by the usual nausea, vomiting and headache. Following the intravenous administrations, in some instances, there was a slight rise in temperature, but this lasted for only a few hours and never exceeded 102 F. Owing to the pain, the intramuscular method was early abandoned in favor of the intravenous route, which was unaccompanied by local reaction, and did not incur the liability to abscess formation and painful indolent sloughs.

RESULTS

Of the seventy patients treated those in the primary stage, with chancres of from one to three weeks' duration gave the best results. Only one dose was given in each case, and the sore healed promptly. The results to date in this class of cases have been particularly gratifying, inasmuch as no further manifestations of the disease have appeared, although periods of from two to five months have elapsed since the treatment.

Another group of cases in which the results seem to be very satisfactory is that in which the patients have received the drug following a vigorous course of mercury for periods of from a few months to a year, with the disease under control at the time. None of the cases in this group have so far recurred clinically, and in all that we have been able to follow serologically, the Wassermann reaction has remained negative. Some of the cases have been under observation now for six months.

Cases with active secondary or florid syphilis, however, although all of the lesions and clinical manifestations have promptly disappeared following the treatment, and in many cases the Wassermann has become negative, almost invariably recur at some later date.

In cases with the late recurring secondary and tertiary lesions, or in which more or less diffuse syphilitic processes are present in the body, an absolute eradication of the disease with one or more doses of the drug can scarcely be expected. In none of our cases of this type have we been able to accomplish permanent results with salvarsan alone, although a marked beneficial effect on the lesions has almost always been observed.

In one case of congenital syphilis, with severe double keratitis in a girl 12 years old, no benefit resulted from an intramuscular injection of 0.2 gm. of salvarsan. In one tabetic receiving 0.5 gm. of salvarsan the painful crises disappeared and remarkable improvement in the general condition followed.

In six cases which were followed in order to observe the effect on the *Spirochætæ pallidæ* in open lesions, the organisms were seen to disappear in from five to twelve hours.

COMPLICATIONS

In no cases have any untoward effects been observed directly attributable to salvarsan, with possibly one exception. In this patient ten weeks after the injection a palsy of the iris and accommodation in the right eye developed. The patient has been under treatment with potassium iodid, but the lesion is still present. A sufficient interval has not yet elapsed to make clear whether the palsy was syphilitic or caused by the salvarsan. In another case two months after injection, a paralysis of the external rectus of the right eye, such as is often seen in syphilis, was noted. The Wassermann reaction never became negative. The paralysis disappeared gradually under treatment with mercury and potassium iodid, so that it seems fair to assume that it was syphilitic in nature. No ear disturbances have been observed.

CONCLUSIONS

From our experience with this drug, we are convinced that it is an important addition to the therapeutics of syphilis. In almost every case in which visible lesions were present complete disappearance followed the injection and marked improvement in the general condition of the patient was a constant feature. In all cases refractory to mercury, the response to salvarsan has been prompt and striking. The drug is indispensable for the treatment of patients who do not tolerate mercury. A study of our statistics does not warrant us in expecting a complete cure of syphilis and absolute immunity from recurrences in the majority of cases after the use of only one or two injections. A small number of cases which have been followed by us for four or five months without recurrences justifies the belief that one injection of salvarsan will effect a complete cure in some cases. Salvarsan is without doubt of equal value with a long course of mercury and potassium iodid in the cure of lesions. It has, however, the very great advantage of simplicity of administration, and causes the lesions to disappear with great rapidity. Moreover, it saves the patient from the damage done by the luetic toxin during the period necessary for the control of the disease by means of mercury.

We want particularly to emphasize the fact that the use of salvarsan has now passed beyond the experimental stage. One should no longer make it his object to see how much good can be done with one or more injections of this drug, but rather of how much value it can be made to assume in the treatment of syphilis when combined with other drugs.

The superior ability of salvarsan over mercury to kill rapidly the *Spirochætæ pallidæ* in the tissues has been demonstrated beyond question, and salvarsan is therefore indicated in every case of syphilis, when not specially contra-indicated, even in those cases in which it seems advisable to supplement it with the subsequent use of mercury.

From our experience at present, we strongly advocate a vigorous course of mercury following the injection of salvarsan, continued for about six months and possibly then followed by another dose of salvarsan. In the primary cases, and those already well under control with mercury, it seems fairly probable that salvarsan may be sufficient to eradicate the disease.

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THE DISADVANTAGES INCIDENT TO THE ADMINISTRATION OF SALVARSAN*

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Salvarsan in its present form can never become a popular remedy. Paul Ehrlich, however, is so ingenious that any day he may invent a modification that will be more easily administered, and will be even less toxic.

There are three determinations of salvarsan that are of fundamental importance; its poisonous action on the *Spirochæta pallida;* its selective action on epithelial tissue; and its selective action on the tissue of nerves. Its stimulating action on epithelial tissue is shown in the marvelous way mucous patches and luetic ulcers epidermize under its influence. Its selective action on nerve tissue, however, is what immediately interests us in this paper.

On the introduction of salvarsan, the attention of observers was fixed on the optic nerve, as it was feared that salvarsan might, like atoxyl, cause amaurosis. But experience accumulated, and as no reports of disagreeable ocular symptoms were at first recorded it was hoped that at last an arsenic preparation had been discovered which had no attendant grave toxic disadvantage. Still later experience tends to show, however, that salvarsan is not entirely free from poisonous influences on the nerves in the orbit. Finger was among the first to draw attention to these, but the instances reported are not so typical as those from atoxyl and arsacetin. They have been observed very infrequently, and it seems often to be a question whether they are owing to syphilis, to salvarsan, to a previous treatment with atoxyl, or to some other cause. It must be remembered that the hope and the interest aroused by the new drug have induced

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

thousands of old syphilitics to apply for treatment for all sorts of chronic ailments not necessarily caused by syphilis at all, and that among these old ambulatory pathologic museums there would necessarily be a great number suffering from ocular disabilities.

But while attention was fixed on the eye, the ear seems to have suffered, as since the introduction of salvarsan an unusual number of troubles with the vestibular apparatus have been observed in early syphilis. It would seem that the arsenic in salvarsan acts true to kind and that we cannot entirely escape the predilection of this metal for nervous tissue. Implications of other nerves have also been reported, but, of course, of infinitely less consequential gravity. In any fair consideration of the detrimental effect of salvarsan on the nerves, however, we must always take into account the patients with whom we are dealing. Besides having syphilis, which itself attacks the nerves, they, as a class, habitually overindulge in drugs that are strongly neurotropic, such as alcohol, tobacco, coffee and tea, and in addition put their nervous systems to the hardest kind of use, such as exposing the eye night after night to strong electric lights.

It is most interesting to consider for a few moments the selective action of arsenic on the nervous system. Arsenic has been used by therapeutists for ages as a nerve tonic, and although this experience has not the definiteness of a laboratory experiment, it, nevertheless, has value as indicating this metal's neurotropic nature. Accumulated clinical impressions always have a value. Furthermore, the marvelous action of salvarsan as a tonic is common to it and to the other arsenic preparations, and is probably due to its combined stimulating effect on epithelial and nerve tissue. The frequent occurrence of herpes zoster in those who are taking arsenic is another expression of the stimulating effect of this drug on the nerves. Then we have the selective action of atoxyl and arsacetin on the optic nerve, causing amaurosis. Furthermore, dentists constantly use arsenic to kill nerves. Arsenic has also been used for ages as a topical necrotizing agent in the treatment of epithelioma, and those who so employ it almost invariably come to the conclusion that the metal exerts a selective action on the diseased epithelial cells. At the same time, the atrocious pain that it causes when used on epitheliomas impels to the belief that the nerves at the same time are receiving special attention. The intolerable pain sometimes felt when salvarsan is employed, either subcutaneously or intramuscularly, is easily recognized by the experienced as the same kind of pain complained of by patients when arsenic is used topically in epithelioma.

Therefore, we recognize the neurotropic action of arsenic as a nerve tonic, as a herpetogen, as an amaurotic, as a nervocide and as a dolorific. Accordingly, it follows that when an unusual number of vestibular affections are reported in early constitutional syphilis, and therefore at a time of life, as well as at a stage of the disease, when such affections are rare, there naturally arises a grave suspicion that salvarsan may be the cause.

But the surprise lies in the fact that it is so little toxic. It is long since anything so dramatic as the introduction of salvarsan has occurred in the practice of medicine. The metal forming its main ingredient has played a romantic part in the world's history as a poison. Ehrlich, by combining this metal with other elements, changed at will its mode of action as regards this or that kind of animated protoplasm, so that it became almost indifferent even to its beloved nerve-cells and yet retained a strong affinity for the cells that constitute the virus of syphilis.

At present very few men rely solely on salvarsan in the treatment of syphilis. It is now used in conjunction with the two other great specifics, mercury and iodid of potash. On informing a patient that salvarsan is not an absolute specific for syphilis, clearing up the disease and all its manifestations at one stroke, it is interesting to watch the mental reaction that takes place. The patient almost invariably concludes that the remedy is worthless. Yet a medical man, for the sake of his own reputation, must tell the facts of the case. Furthermore, it is dangerous to tell a patient that he is cured, for then he is thrown off his guard in case further manifestations of his disease should appear.

Another feature tending to diminish the popularity of this remedy is the difficulty surrounding its administration. It cannot be taken by the mouth, and if given either intravenously, intramuscularly or subcutaneously, it has to be prepared with minute care, and the injection has to be carried out under the strictest antisepsis, as the drug itself is an irritant, but not an antiseptic.

Many drugs such as morphin and cocain are so bland in their action on the tissues that we never expect any local trouble to follow their hypodermic use. Others, while irritant and harmful, are at the same time antiseptic, and therefore the injured or necrosed tissues are not exposed to the additional danger of sepsis. One of the great points in favor of the administration of salicylate of mercury intramuscularly is that this particular preparation is slightly soluble and a good antiseptic, and yet so slowly soluble as to act almost as powerfully as an insoluble mercurial salt. Among the drugs used subcutaneously or intramuscularly, salvarsan is distinguished by its injurious action on the tissues, and often gives rise to local necrosis. K. Martius found that it did so in every case he investigated. Once, where the injection was thrown into the gluteal muscles, there was no tendency to heal, although three months had elapsed. In two instances the necrotic mass had to be excised.[1] Salvarsan, however, although it acts so injuriously, is not an antiseptic, and therefore if the technic is not perfect and germs happen to be included in the injection, they have an excellent opportunity to develop in the injured or helpless tissues. Septic infection, sometimes fatal, may therefore be a consequence of the administration of this remedy.

When salvarsan causes an arsenic necrosis that involves the whole skin, an ulcer results that is very slow in healing, and there is no telling when such an ulcer may develop. I have seen a patient get a necrotic ulcer from an injection of salvarsan who, several weeks before, had received an injection that passed off without any more than the ordinary inconveniences.

Then again, when salvarsan is given either subcutaneously or intramuscularly, the drug may not be absorbed. Schreiber had a patient, a doctor, who became so tired of the annoying deposit of salvarsan as to beg to have it cut out, and over 80 per cent. of the drug was removed from the local deposit. I have seen a number of these deposits, and the percentage of their occurrence must be quite high. In many instances they lie almost inert in the tissues causing pain only when pressed on, while in other cases they are very annoying. When the deposits are very annoying, the patient may ask to have the sac emptied, and the affair ends. When such a deposit

1. Martius, K.: Local Action of Salvarsan at Point of Injection, München. med. Wchnschr., Dec. 20, 1910; abstr. in THE JOURNAL A. M. A., Feb. 4, 1911, p. 388.

is inert it is a question what to do with it; whether to leave it alone or to advise its removal. If left alone it might possibly give rise to arsenic poisoning by slow absorption, although I have never seen it do so. When the remedy lies unabsorbed, it, of course, does not act as an antisyphilitic, and may, if solely relied on to combat a progressive, destructive gumma, occasion serious loss of time. In other words, it constitutes a delay in treatment, possibly at a critical moment.

The intravenous method is undoubtedly to be preferred, as when the patient receives the dose, he has it then and there in sufficient quantity, and with little fear of any local trouble. But this way of administering salvarsan constitutes a surgical operation, demanding skill, intelligent care, and the strictest antisepsis, and more care and time indeed are here necessary than in many more pretentious operations. Above all things, an absolutely perfect solution must be obtained, as the injection of solid particles into the venous circulation is not permissible. So important is it to get a faultless solution that Schreiber always kept this step under his direct supervision. I never saw him give the actual injection into the vein, but I never saw an injection given in his clinic wherein he did not supervise the dissolving of the salvarsan. The greatest care is also necessary to keep adventitious particles out of the fluid. Sterilized distilled water should be used in making the solution, and no cotton should be employed in stoppering the bottles or in wiping the instruments lest cotton threads get into the fluid. The solution injected into the veins should not be a concentrated one, as it is an axiom that even harmless salts, when employed intravenously, should be well diluted. Furthermore, if by accident some of the salvarsan solution should escape into the subcutaneous tissues, it irritates far less when highly diluted than when concentrated. A concentrated deposit of salvarsan at the bend of the elbow where it may annoy for weeks is not pleasant.

Another important point in the intravenous injection is that the lumen of the needle should be free of rust. The blood in flowing out through a rusty needle is far more apt to clot than if the bore of the needle is smooth. This clot would naturally be injected into the vein in the course of the operation. I have also seen thrombus of the vein, presumably from the mere injury of the operation. The only symptoms were edema of the arm with some functional incapacity, and a cord-like hardening that cleared up in a short time.

An annoying feature, although a fleeting one, is the severe pain at the shoulder that patients often complain of after about 100 c.c. are injected. This may necessitate stopping the injection for a few moments in order to allow the circulation to readjust itself.

What is called a Herxheimer arsenical reaction may occur on the skin in the course of the first few days. It is a bright red erythema, usually best observed on the trunk, and I have never seen it give rise to any further disturbance. It is as well to know of its existence, however, as misunderstandings may otherwise occur.

The salvarsan reaction in the syphilitic lesions themselves is highly important. When, for example, there are a great number of very active syphilitic lesions, as in early malignant syphilis, the temperature reaction may run as high as 105 F. It is, therefore, important to be careful when there are many lesions, and when there is a low cachectic condition. I have never seen any deaths arise from this source, but at times there are serious inconveniences. In such cases Schreiber advises giving half the usual dose, followed in a week by the other half. Usually, the temperature reaction comes on quite early in all syphilitic lesions excepting those of the central nervous system. The temperature reaction in lesions other than those of the central nervous system occurs at about four or five hours after the injection, while in lesions of the central nervous system it occurs at about from eight to ten hours afterward. This difference is so regular in its occurrence that it may be used for diagnostic purposes. When no syphilis is present, no temperature reaction occurs. The experience of Schreiber is particularly interesting in this respect. Knowing how frequently arsenic is prescribed in psoriasis, and how excellent the results sometimes are, and knowing also that in many instances the favorableness of the result bears some relationship to the size of the dose, he hoped to achieve success in psoriasis by injecting salvarsan which contains such an enormous quantity of arsenic. The psoriatic patients injected showed no temperature reaction whatever, nor had the drug the least effect on the eruption.

There is not alone a temperature reaction in cases of syphilis in which salvarsan is injected, but there is a marked reaction in the lesions themselves. They become redder and more swollen. The drug acts in this respect somewhat like tuberculin in tuberculosis. As may readily be seen, this is an important matter when it comes to the question of administering salvarsan where the affected organ is of great dignity, as in cases of gumma of the heart or of the brain. If a patient has gumma of the brain, from which he is suffering severely from the pressure of the tumor, the sudden enlargement of this tumor, consequent on the local reaction, may be of the greatest importance. For the same reason, if a patient has gummatous softening of an artery, giving rise to an acutely dilating aneurysm, a dose of salvarsan by increasing the quantity of blood sent to the part may cause irremediable damage. The action of mercury and of potassium iodid is quite a contrast to this, as under these remedies there is no increased afflux of blood to the affected part, but rather a slow melting down of the syphilitic infiltration. Of course, in a patient suffering with aneurysm the drug would not be administered intravenously, as the fluid itself would dangerously raise the arterial pressure.

Finally we come to a disadvantage in the administration of salvarsan, which may count for nothing in an altruistic or scientific sense, yet from a practical point of view is of great importance. It is not a remedy to use in office practice or in an ambulatory clinic. The patient should be sent to a hospital, and this in itself constitutes an expense which many patients cannot afford. Even when given intramuscularly or subcutaneously, the administration of salvarsan consumes considerable time, and the physician's time counts for something. When given intravenously a very considerable amount of time is consumed, as the administration amounts to a surgical operation, making its administration still more expensive. This expense the patient might cheerfully undergo if the physician were able to assure him that his troubles would thereby be ended, but we are far from being in a position, even after several injections of salvarsan, to assure the patient that he is permanently cured. In the present state of our knowledge, we still are compelled to advise the patient, although he has taken salvarsan, to take mercury and potassium iodid also.

An enumeration of the disadvantages of this new drug serves only to throw into still bolder relief its great advantages. The wonder grows that such a powerful

spirillicide can be thrown in such quantities into the circulation with such little risk to the host. In contemplating this marvel, we begin to appreciate the fine scientific imagination of the man who made this possible.

323 Geary Street.

ABSTRACT OF DISCUSSION

ON PAPERS IN THE SYMPOSIUM ON SYPHILIS

DR. D. W. MONTGOMERY, San Francisco: I agree with Dr. Fox that it is unnecessary to dissolve salvarsan in normal salt solution. It is best dissolved in warm distilled water. But salt solution should be injected into the vein before injecting the salvarsan solution, in order to make sure that the point of the needle lies free in the vein. The making of the salvarsan solution is a most important step. The solution should be perfectly clear. I never saw Schreiber give the actual injection, but on the other hand I never saw this drug administered in Schreiber's clinic when he did not himself personally superintend the making of the solution. One of the speakers has accentuated a fact that I think cannot be successfully disputed, that mercury is a true specific for syphilis and that it constitutes the best means that has yet been found for treating the disease. I also believe that iodid of potash is a specific for syphilis, although inferior to mercury. Mercury is a poison. This, to my mind, is as clear as any fact in therapeutics.

DR. HOWARD FOX, New York: In our work at the New York Skin and Cancer Hospital we have observed one case of herpes zoster following the use of this drug. In the course of 128 injections we have not had any serious ill effects. In two of the cases the treatment was followed by a general toxic erythema, accompanied by high temperature, lasting three days. Necrosis at the point of injection occurred in five cases, twice after subcutaneous injections, once after an intramuscular injection of an alkaline solution, and twice after intramuscular injections of oily suspensions. I cannot agree with the previous speaker that the intravenous injection of salvarsan is a difficult or complicated procedure. With a little experience the proper introduction of the needle into the vein can readily be learned. It is hardly necessary to say in addition that the usual aseptic precautions should be strictly observed. In the interest of simplicity I think it best to use sterile water instead of physiologic salt solution for diluting the salvarsan. Furthermore, the gravity method is in my opinion much simpler than the method originally suggested by Schreiber. In the course of sixty-nine intravenous injections we have noted the appearance of small nodules in the vein in eight cases. In six of these cases the nodules disappeared very shortly after the injection.

DR. W. J. BUTLER, Chicago: In regard to the treatment of the disease under consideration, I wonder if we all have similar ideas on this question. When is syphilis cured? I do not think that any of us can answer that question; I do not think that we can saturate a patient for two or three years and then say that the patient is cured; we all know that he is not cured. I agree with what has been said regarding the value of mercury; I can also see certain advantages that result from the administration of this agent hypodermically. How do you know when a patient is saturated? This we do not know clinically. Too much importance has been given in past years to the disappearance of external manifestations and their continued absence in judging the results of treatment of syphilis. The possibility of visceral syphilis existing or appearing at any time should always be kept in mind. I cannot emphasize sufficiently strongly the above points. If we ask ourselves when are these patients cured, we can only say, recollecting the possibility of recurrence at any time, they are cured when they are dead. We can, however, determine the activity or inactivity of the specific virus in a syphilitic by resorting to the serum reaction for syphilis. This is the only means of judging early activity of the specific process in internal organs, before clinical symptoms have manifested themselves. In the treatment of syphilis the serum reaction should not be applied for one, two or three months, or even years, but indefinitely as a control on the activity or abeyance of the disease. We should never assume that we can treat a patient with this disease for two or three years and then say positively that he is cured. The serum reaction should be resorted to when treating these patients to see that the treatment is being pushed sufficiently. We should never assume that a cure has taken place because there is a negative reaction. Such patients should not be allowed to go out of the care of the physician even when the serum reaction is negative after two, three or four years of treatment, but should occasionally receive further treatment to protect them against recurrences, and their blood should be examined three or four times a year. When found positive, treatment should be resumed.

DR. C. F. HOOVER, Cleveland, Ohio: During my student days I was profoundly impressed by an autopsy on a young man who died from pulmonary syphilis shortly after his return from Switzerland where he was sent six months before on account of an hemoptysis supposedly of tuberculous origin. Ever since that experience I have endeavored to avoid such a diagnostic error by always considering the possibility of syphilis whenever a chronic pulmonary disease is under consideration. Thus far I have seen only three instances of pulmonary syphilis in adults. That it does not oftener occur seems strange, but it seems more strange to me that our colleagues who practice in regions frequented by tuberculous patients have not a goodly number of cases of pulmonary syphilis to report.

Every variety of fever curve is encountered in syphilis. I remember one instance in which the rise from normal to 106 F. and return to normal was accomplished within a few hours. There were sufficient signs to show that the disease was located in the liver and on account of the extremely rapid rise and fall of temperature a diagnosis of suppurative pylephlebitis was made. This patient promptly recovered after mercury was given. Another patient with syphilitic fever (whom I saw through the kindness of Dr. Buswell of Buffalo) had relapsing fever for a period of fourteen years and during all that period never had more than ten consecutive days without having at least one or two days of fever. Recently a woman who was referred to the medical ward of Lakeside Hospital from the gynecologic service had a daily evening rise of temperature to 104 F. This patient was infected with syphilis ten years previously and had been often treated for some manifestation of the disease since that time. Within forty-eight hours after mercury was given in large doses all fever ceased.

I think the experience we have had with salvarsan has taught us that the proper method of employing mercury is to give large doses up to the point of tolerance for short periods of a few weeks. Lesser doses of mercury are probably harmful when long continued.

DR. HARRY REEVES OLLIVER, San Francisco: I have had one case of lung syphilis, in a young man 34 years old. He had been treated for six years for tuberculosis of the lungs. He had been sent to different climates. He had had hemorrhages, but no tubercle bacilli were ever found in the sputum. About six months ago he came to me to see if I could find any tubercle bacilli. He was very despondent. When in the laboratory I questioned him; he was asked if he had ever had syphilis. He smiled and revealed a perfect set of Hutchinson's teeth. The Wassermann reaction was positive. He was placed on mercury and the improvement was rapid. The radiographic plates showed pulmonary lesions. At this time salvarsan came into use and the patient was given injections, beginning them on January 8. The improvement that followed was remarkable. He gained 19 pounds in weight in three weeks; his gain was steady. The day after his first injection of salvarsan he did, however, have a hemorrhage. So far as I can determine he is now in perfect health. Subsequent *x*-ray examinations of the thorax have shown that the shadows have markedly decreased in size. This man had a sister with large glands over her body and I suggested that an examination of her blood be made. The Wassermann reaction was positive and I gave her salvarsan; within two weeks the enlarged glands had entirely disappeared, and she quickly gained in weight.

The mother of these two individuals was in bed with a very pronounced myocarditis. Her blood also gave a positive Wassermann reaction. On questioning her I learned that her husband had died with evidences of a brain tumor. I think that the history in this case was complete.

I have seen four cases of nephritis in which a very large percentage of albumin and granular and hyaline casts in the urine, general anasarca, ascites, etc., were present, and these patients all made a good recovery under the use of mercury and salvarsan. The first patient was to me of particular interest. She was a young woman with general anasarca, ascites, 1 per cent. albumin and with a tumor in the pelvis. I placed her on mercury and Epsom salts. The albumin dropped to 0.1 of 1 per cent. and the casts rapidly disappeared and she greatly improved. She was operated on by Dr. George B. Somers and an ovarian cyst was removed. Ether was the anesthetic used. After the operation she had considerable pain in the back and legs; this was supposed to have been due to this tumor. After the removal of the tumor, however, the pains continued. She was a frail woman and I hesitated to give her salvarsan. The pain continued so severe, with no relief in spite of the mercurial rubs, that I decided at last to give her salvarsan. Four-tenths of a gram was given and within twenty-four hours she had no pain; it is not three weeks since the injection was given and she has not had any pain since. The patient has remained well and gained in weight.

The second case was one that appeared in the medical clinic with sciatica which had persisted for fourteen years. There was a positive Wassermann reaction. The use of salvarsan entirely cured her in a few days.

With regard to what has been said about the dosage of mercury I agree entirely, the best and most lasting results being thereby obtained. As to the saturation guide, I think we should give the full dose for twenty days and then make a Wassermann reaction test. If this is negative we have probably reached the saturation point. We should then keep the dose of mercury at this point; but if there is any indication that there is not enough mercury given, the dose should of course be increased until the Wassermann reaction is negative.

In regard to salvarsan, the resulting reaction depends on the amount of infection before salvarsan was introduced. If a patient has but a mild infection, the quicker will he become negatived after the salvarsan injection. The more positive the reaction before the introduction of salvarsan, the longer will it take for him to become negative to the Wassermann reaction test. I think this is explained by the fact that a large number of spirochetes are killed and thrown into the circulation where their endotoxins give rise to the formation of antibodies. Consequently the more spirochetes present, the stronger will be the reaction and the longer the time required for their elimination from the blood.

DR. HARVEY G. PARKER, Portland, Ore.: It is interesting to note the large sums of money advised to be spent in Wassermann tests during the treatment of lues, one of the speakers mentioning sufficient to count into the hundreds of dollars, at $25 per test; it seems to me the essential thing is to treat the patient very thoroughly and when satisfied that this has been done, after waiting a period of three months without treatment, try the Wassermann test; if negative, later try another. The more frequently early Wassermanns are disregarded and all effort placed on saturating treatment, the better permanent results we will get in treatment. In line with some of the cases reported of long standing hidden syphilis, undiagnosed, I wish to report a case. A patient came to the coast under the advice of his physician who pronounced him tuberculous. He had a severe cough, loss of weight, rapid breathing, and yet expectorated very little; he wandered about from place to place and finally, quite at the end of his resources, he arrived in Portland. He gave a history of a soft chancre eighteen years previously, and was satisfied that there had been no infection since. On general principles among the things resorted to to give relief from the severe cough was protoiodid of mercury; he got some relief but fell dead in a lodging house about this time. Post-mortem revealed a gumma of the arch of the aorta with the right lung also involved. The giving way of the arch caused death. In regard to some of the skin eruptions following the use of salvarsan, I have noticed two erythematous eruptions of a bullous type appearing after the injection, one after the second dose of the drug and aggravated after the third. In another case, on the third day after injection, there developed an itching, oozing eruption, somewhat like psoriasis in appearance as far as color and elevation go, in spots from a dollar to a half in size; at the end of three weeks under astringents it disappeared. I have given salvarsan in several cases in which there was an apparent idiosyncrasy against mercury; also in cases in which mercurial treatment had been long and carelessly used with practically no results, getting gratifying and rapid results with, so far, no bad results. I heartily speak for the intramuscular injection of salvarsan, especially in old cases, but always in conjunction with proper mercurial treatment.

DR. WILLIAM LITTERER, Nashville, Tenn.: I take issue with the statement that salvarsan produced no reactions in cases other than syphilis. I have observed the use of salvarsan in five cases of pellagra, and in three marked reactions were obtained. In one the reaction was very severe, the temperature going to 104 F. while in the other two the temperature reached 102 F. All gave negative clinical history as to syphilis as well as a negative Wassermann. I have also used salvarsan intravenously in two cases of sarcoma; in one only was there a slight reaction. The patient vomited twice the next day while the temperature was 100 F. The Wassermann test was negative. In two cases of psoriasis, salvarsan was given intravenously with the result that in one case the temperature went to 99.8 F. two days after its administration. The Wassermann test was negative. In the pellagra cases good results followed its administration in one case only. In all of the others the general nutrition was improved, but there was no permanent improvement. I should like to report a unique case, which I believe to be one in which Ehrlich's "therapia sterilisans magna" was attained. This patient gave a typical clinical history of chancre on the penis. *Spirochæta pallidæ* were found in large numbers three days after the appearance of the primary lesion. The Wassermann was negative. The chancre was excised and the spirochetes were demonstrated in the tissues by the Levaditi stain. After the method of Iversen, an intravenous injection (0.5 gm. salvarsan) was given, followed four days later by another (0.5 gm.) intravenous, and five days later an intramuscular injection (0.6 gm.) by Lesser's method was given. No other antisyphilitic treatment was instituted. The patient felt perfectly well in every respect. Wassermann tests were made every month for ten months with negative results. Three weeks ago this patient developed another chancre on the penis, which came nineteen days after a suspicious intercourse. The chancre was typical in every respect and numerous spirochetes were found in the lesion. One intravenous of salvarsan caused its disappearance in two weeks. To my mind this is a case in which the first three doses of salvarsan produced a complete sterilization of all the spirochetes in the body. Ten months elapsed without the slightest symptoms and repeated negative Wassermann tests were always recorded. The appearance of the second chancre is a probable demonstration of an instance of Ehrlich's "therapia sterilisans magna."

DR. GEORGE H. AIKEN, Fresno, Cal.: I should like to say something from the standpoint of the general practitioner. I have been treating syphilis for over thirty years and have had a large number of cases. I feel somewhat humiliated in being told that I have really never cured a patient. I rise especially to ask the gentleman who says that no patient is ever cured to listen to the recital of this case: A young man 20 or 25 years old, having been treated for this disease for two years, marries a healthy young woman, who bears four or six children. These children grow up healthy and strong, they never develop any local or constitutional evidences of syphilis, and they are under observation constantly for over twenty years. What should be our conclusion in this case? Was this patient not cured?

DR. WILLIAM W. GRAVES, St. Louis: If there is anything the medical profession of this country is united on, it is the belief in the curability of syphilis; yet recent serologic investigation and more accurate clinical observations indicate that many individuals whom we have considered cured have not been cured at all, and this is true whether from our recognized

specific or from the much lauded salvarsan. Aside from accurate clinical studies of the syphilitic, similar studies of his wife and his progeny further show the inadequacy of our therapy. During the last five years I have made what I have called comparative clinical studies of families in which the fathers were syphilitics; likewise of families in which the fathers were free from syphilis. These studies have shown what is everywhere recognized, that healthy parents beget offspring, as a rule, quite equal to themselves in physical and mental endowments. "A chip off the old block" is expressive of our expectation of the offspring of healthy parents. My studies of families in which the fathers were syphilitic have shown: first, the wives, like the husbands, are rarely free from some of the more subtle manifestations of syphilis, such as pupillary anomalies, sensory loss, arterial changes, pallor, alterations in reflexes, etc.; second, the offspring rarely compare favorably with either parent or with each other. These studies have further shown the infrequency of the heretofore recognized signs of congenital or so-called hereditary syphilis, such as Hutchinson's teeth, interstitial keratitis, deafness without otitis, joint, skin and mucous membrane affections. Now the absence of these signs is one of the main props to our belief in the curability of syphilis. When such signs fail in the progeny, we point to them as living examples of the triumphs of our therapy in the parents. Similar comparative clinical studies of a few families in which the fathers are tabetics or paretics or known syphilitics will prove to anyone who will take the time to make such studies the inadequacy of our therapy, and, at the same time, the evil effects of syphilis on the progeny. I wish to indorse all that has been said by Dr. Butler. We must look the issue squarely in the face and not be afraid to look more closely at the progeny and to make clinical studies of them and of their mothers. We consent to a syphilitic's marriage three, four or five years after his infection, provided he has had adequate treatment and no recent manifestations; yet no man can say when a syphilitic has had adequate treatment nor when he is cured. The repeated use of the Wassermann reaction indicates that not more than 35 per cent. are apparently cured, and more accurate studies of the syphilitic, his wife and progeny will show that he is seldom, if ever, cured. It is safe to say that not more than 10 per cent. of syphilitics who apply to the medical profession for treatment receive what is considered adequate treatment; so that Nature must take care of the 90 per cent., and comparative studies of families will show that she does it almost as well as we do. These studies have caused me to admire Nature's resources in the care of syphilitics and at the same time to believe that our hope for a cure lies neither in mercury nor salvarsan, but in prevention.

DR. B. H. ORNDORFF, Chicago: I wish to relate the experience I have had with salvarsan. In a series of nearly 100 cases of syphilis intravenous injections of salvarsan were given and without any unfavorable symptoms. In nearly all of the cases the Wassermann reaction test was positive. I also gave salvarsan in three cases of leukemia. The first was a case of myeloid leukemia, with 450,000 white cells. The full dose was given. There were no beneficial or deleterious effects for about three months following the injection; then the patient had trouble with the auditory apparatus. This patient died one month later when he was totally deaf. The second case was one of lymphatic leukemia with 600,000 cells of the mononuclear type. Three weeks following the injection of salvarsan, this patient died, having slight auditory disturbances. The third case was one of chronic lymphatic leukemia; the white cells were less than 200,000. No advantageous nor deleterious results followed the injection of salvarsan.

DR. L. S. SCHMITT, San Francisco: The discussion has been somewhat apart from the subject of my paper, the laboratory diagnosis of syphilis. By using laboratory methods, particularly the dark-field condenser, one can corroborate the point made by Dr. Graves that the injection of salvarsan reduces the contagious condition of the initial lesion, and of the secondary syphilids within twenty-four hours. With regard to the point brought up by Dr. Butler, it is difficult to tell when a patient with syphilis is cured. In the examination of the serums of the offspring of syphilitics I have found positive reactions in a number when there were no clinical manifestation in the parents. In syphilis, with a return of the reaction one can anticipate a return of the clinical symptoms. To bring out a point made by Dr. Graves and Dr. Butler, I have in mind a patient who without doubt had syphilis; the Wassermann reaction made shortly before death was positive. The history brought out the fact that the primary sore dated back forty-one years before his death.

DR. FRANK BILLINGS, Chicago: Visceral syphilis is very prevalent in the large cities, but is not much found in the country towns. There is no doubt that any man who has access to the big hospitals will find many cases of visceral syphilis, cases that have not been discovered previously. Dr. Hoover mistakes me when he states that I said I had never met with a case of pulmonary syphilis. I did say, however, that I had never seen cases that were called in the literature "interstitial forms of pneumonia of the syphilitic type." Such cases I have not seen. I believe Dr. Graves' statement is true, that probably a very small portion of people applying for treatment are properly treated. Therefore, late syphilitic lesions are presented to us. How many of you have cases of locomotor ataxia come for treatment and in taking the history you find that the patients have not had adequate treatment? How many of you have found locomotor ataxia develop among your own patients? I have practiced medicine over thirty years and I have seen many patients with visceral and nervous syphilis who have not been cured. Perhaps I have not cured these patients. Can any of you say that your malarial patients are cured? Yet I do not want our old friends and patients to believe that one suffering from syphilis will be condemned to an eternal attack of this disease. I believe enough in drugs to feel that mercury will absolutely cure syphilis. If I can keep patients long enough under observation, I believe I can prevent further signs of the disease appearing. I have had some experience with salvarsan chiefly in late syphilis. I have given salvarsan to thirty-three patients. I have repeated the dose in several patients. One patient received four doses. Three patients each received two doses. The results from the use of salvarsan have not been as good as from the use of mercury in my hands. In patients suffering from locomotor ataxia salvarsan seems to have an analgesic effect. Those suffering from the crises seem to be relieved in a few hours after receiving this agent. I recall one man who came from Milwaukee with a very severe neuritis of the brachial plexus; he had been confined to his bed for many months; the Wassermann reaction was positive. This patient was entirely relieved of his pain in eighteen hours and he was able to use his hand again within one week after the injection. I have seen many instances which show the analgesic effect of salvarsan. I believe in the use of mercury. As to what form of mercury to use I believe that is, to a certain extent, a matter of individual choice. During the last few years I have come to resort to the intramuscular method; I feel that I can command the dosage better in this way than in any other. I can keep my patients better under command. I think the value of mercury is greatly enhanced when the patient is absolutely at rest; this applies to any case of syphilis, whether primary or late. Mercury should be pushed to the point of saturation; this means at least to the point of salivation. I give large doses—as much as one-half a grain of corrosive sublimate; by repeating this again and again we conserve the best interests of our patients. I look on the iodids not as a specific in any sense, but as a helpful means of driving out the waste material. When we meet with gumma, for instance, the administration of the iodids will clear it up quickly as a rule, and without intervention from mercury.

Ointment Bases.—W. T. Corlett, in the *Cleveland Medical Journal*, calls attention to the importance of adapting the base of an ointment to the disease for which it is prescribed. If an ointment is intended as a vehicle for an internal remedy, the base should be absorbable, such as lanolin or lard. On the other hand, if the remedy is to act locally, a non-absorbable base should be chosen, such as petrolatum. In conclusion the author criticizes some of the ready-made ointments, especially those "made in Germany," which have been devised to replace the time-honored ointments of the pharmacopeia.

THE USE OF SALVARSAN*

J. O. HIRSCHFELDER, M.D.
SAN FRANCISCO

The preparation which is the subject of inquiry differs from most of the weapons given us in our combat with disease in that its discovery was not due to a lucky accident but was rather the result of a carefully worked out method of investigation.

Believing that for each specific parasite a specific curative drug could be found, Ehrlich set out to find a substance which should be parasitotropic to the *Spirochæta pallida* (that is, should enter into combination with the pathogenic organism), rather than organotropic (that is, capable of combining with the cells of the human body). The direction which his search should take in syphilis had already been indicated by the work with atoxyl that had been done by Uhlenhuth, who had found that that substance permanently cured the syphilis of rabbits. In the clinical use of atoxyl, its effects on the body had been found so dangerous that its employment had been nearly abandoned, but the efficacy of arsenic in the destruction of the spirochetes had been so firmly established that the problem with which Ehrlich had to deal was clearly defined. It was to find a preparation of arsenic which would enter into combination with the *Spirochæta pallida* without affecting the body. With a skill and patience that will ever serve as a model of scientific work, Ehrlich, aided by a number of assistants, engaged in his task and solved the problem to his satisfaction in the discovery of salvarsan. After numerous experiments on animals proving the efficacy of the remedy in experimental syphilis and its harmlessness for the animals treated, he distributed about 20,000 doses of the remedy gratuitously among scientific clinicians throughout the world, and when he received confirmation of his claims from these sources he gave his treatment to the world. The enthusiasm with which the new remedy was welcomed reminded one of the days following the announcement of the discovery of tuberculin by Koch, but unfortunately its extensive employment did not confirm completely the hope that in it we had a remedy, a single dose of which would completely annihilate the parasite of syphilis and cure all the symptoms it produced.

Hata, working with Ehrlich, investigated the mode of action of the drug *in vitro* by mixing solutions with blood containing spirilla diluted thirty to forty times with physiologic salt solution, and examining the solution after one hour to determine the motility of the parasites. Non-motility was considered to indicate their destruction. It was found that comparatively small doses of salvarsan sufficed to destroy the spirilla completely. The next step was the investigation of its effects on syphilis of rabbits, and here the results were most brilliant. It was found that doses of 10 mg. per kilo weight of the animal administered intravenously sufficed to destroy all of the spirochetes in the body, to remove every symptom of the disease and to prevent its recurrence.

These results have been confirmed by others so that there can be no question of their correctness. Hata found that this dose was one-seventh of the maximal dose which the rabbit would tolerate. The work that had been done in Ehrlich's laboratory showed that microorganisms readily develop immunity to some drugs which act on them. For example, if mice infected with trypanosomes receive an efficient dose of trypan-red, they are cured by one injection. If a dose slightly less than that necessary to destroy the trypanosomes be given, the latter disappear from the circulation for a while and then return. By repeating this treatment, a strain of trypanosomes was produced that was resistant to the largest dose of trypan-red that could be used and this resistance was transmitted to the trypanosomes for several generations. The same was found true of atoxyl.

Dr. Margarete Margulies found that trypanosomes could readily be made resistant to salvarsan, but that this resistance never occurred in the case of *Spirochæta pallida;* that after numerous injections of small doses, the vulnerability of *Spirochæta pallida* to efficient quantities remained unchanged.

DESCRIPTION

As is well known, salvarsan is dispensed as a light yellow powder in sealed glass capsules free from air, but containing the vapor of wood alcohol to preserve it from oxidation.

Salvarsan, dioxydiamidoarsenobenzol, is an acid substance which combines with alkalies to form monobasic and dibasic salts. It dissolves freely in water, forming a clear yellow solution. On the addition of a small quantity of alkali, it is precipitated as the neutral salt, which on further addition of alkali becomes dissolved as a basic salt. Using sodium hydroxyl, we have successively formed the monosodium and then the disodium compound. As has been shown by Michaelis, in whichever form the substance is introduced into the blood its solubility is never more than 0.001 per cent. and he believes that its relatively low toxicity is due to this slight solubility in the blood.

Salvarsan has been used in doses up to 1 gm. without serious effects. It has been calculated from the average animal dose (including that given the monkey) that a human being might be given 5 or 6 gm. at one injection without fatal results, but the actual test has not yet been made.

After about a year's trial of the new remedy, all observers, including Ehrlich himself, unite in believing that the hope Ehrlich expressed when he presented it to the medical world that a single dose would sterilize the body, destroying every spirochete present, is an illusive one. In a certain number of cases its effects have been magical, the symptoms of syphilis have rapidly disappeared and the spirochetes that had been present before in large numbers were no longer to be found. This is especially apt to be the case in the early stages. In by far the larger number of cases, however, such results were not observed. Indurations and glandular enlargements were found to diminish but slowly and to require repeated administration of the drug. Some cases were found to be absolutely uninfluenced by salvarsan, so much so that some authors have claimed that its efficiency is not greater than that of mercury.

ADMINISTRATION

In the administration of salvarsan three methods may be used: (1) intramuscular, (2) subcutaneous, (3) intravenous.

Numerous modifications of the details of administration have been suggested by various observers, but the most important ones are the following:

Wechselmann and Lange[1] dissolve the dose in sodium hydrate and precipitate by neutralizing accurately with

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Wechselmann and Lange: Deutsch. med. Wchnschr., July 28, 1910.

glacial acetic acid. This neutral mixture is used for injection intramuscularly or subcutaneously.

A slight improvement has been made in this method by sedimenting, pouring off the supernatant fluid and mixing the deposit with physiologic salt solution. Alt advised the use of an alkaline solution of salvarsan, the alkalinity being as slight as possible and the entire mixture not to exceed 30 c.c. for intramuscular injections.

Others, especially Michaelis, recommend still smaller quantities of solvent, not over 10 c.c., claiming that the pain produced is thereby diminished.

Some observers prefer the suspension of the neutral base in paraffin or other oil and believe that pain may thereby be avoided.

When the solution is used, stress is laid on avoiding excess of alkali. This may readily be done by adding not quite sufficient alkali for complete solution and then filtering through a sterile filter-paper.

In the intramuscular injection the gluteal region is usually selected. It is well to see that no blood flows through the needle before injecting the salvarsan. The injection should be made slowly and care should be taken that none of the fluid escape into the surrounding tissues.

Both the intramuscular and the subcutaneous forms of administration are followed by pain and induration. If the neutral substance be used, the initial pain is usually less than when the alkaline is employed, but the succeeding pain, according to most observers, is quite as intense.

With both intramuscular and subcutaneous injections, infiltrations set in which may last several weeks. These are accompanied by varying degrees of pain and some fever.

In the majority of cases the pain is so severe as to necessitate the use of morphin for several days. In addition to these local symptoms there is often headache, nausea, vomiting and diarrhea.

Intravenous injections of salvarsan should always be made with a perfectly clear, sterile, alkaline solution. Inasmuch as small particles of glass are always present from the breaking of the capsule, it is necessary that the solution be filtered. The intravenous introduction of the solution offers no difficulties whatsoever, if care be taken that the needle enters the vein and does not pass through its walls into the adjacent tissue. This is made evident by the free flow of blood through the needle, which must be observed before passing the solution through it. It is well to dilute the solution to 250 c.c. or 300 c.c. and to warm it up to about 110 F., for in flowing through the tubes it becomes cooled.

The caliber of the needle used should be sufficient to permit this quantity to flow into the vein in about fifteen minutes. Thus employed, the intravenous injection gives rise to absolutely no local symptoms. It occasionally, but by no means always, happens that the patient experiences some headache, slight fever with chill, severe sweating and more or less gastro-intestinal disturbance.

PHYSIOLOGIC ACTION

When salvarsan is injected intravenously, it rapidly appears in the urine. Aberlin[2] has described an easy method of demonstrating its presence. If a few drops of urine acidulated with hydrochloric acid, to 7 or 8 c.c. to which 3 or 4 drops of a 0.5 per cent. solution of sodium nitrite has been added, be mixed with 5 or 6 c.c. of a 10 per cent. solution of resorcin made alkaline with sodium carbonate, a red color develops. He has found salvarsan in the urine by this method two hours after its intravenous injection. Heuser[3] has found arsenic in the urine three months after intravenous and nine months after intramuscular administration. Bornstein,[4] experimenting on animals, found that a large quantity of the salvarsan injected intravenously did not remain free in the blood, but was deposited in the liver, spleen and kidneys with smaller quantities in other organs. He confirmed these findings on a man who had died from intercurrent infection fourteen days after an intravenous injection. He also found arsenic in the placenta of a woman who had received salvarsan.

When salvarsan is injected intramuscularly or subcutaneously, a considerable portion of it enters into relation with the tissues and forms a deposit of some combination of arsenic which may be present for a very long period.

The reports concerning the effects of salvarsan on the Wassermann reaction vary. In a number of cases, within a short time after its administration, the reaction, which was positive before, became permanently negative. In a far larger number of cases the negative phase lasted but a short time and was followed by a positive Wassermann. In some cases absolutely no effect was produced and in some instances a negative Wassermann reaction became positive. In the latter case there was undoubtedly development of antibodies from destruction of the spirochetes present.

A number of unpleasant effects of salvarsan besides the local pain, the fever, sweating, headache and gastro-intestinal disturbances have been observed. Some of these have been transitory, like the Herxheimer skin reaction, whereas others have been permanent. Surprisingly few fatalities have been recorded, when we consider the large number of patients who have been treated and the severe pathologic conditions that have been present in many of the individuals who have taken the treatment. Experience has confirmed the wisdom of the advice given by Ehrlich that it should not be used in severe cerebral disease, in arteriosclerosis and cardiac affections. It has also been advised that it should not be used in putrid bronchitis, in severe diabetes or in any condition in which the body has become much enfeebled.

Inasmuch as optic atrophy had been frequently observed after the use of atoxyl, it was deemed wise to consider the possibility of a similar result from salvarsan. Experience has not confirmed this fear. Optic atrophy has not been observed as having resulted from its use unless other arsenic preparations had been previously employed. Ehrlich distinctly advises against the employment of the drug when atoxyl, arsacetin or other arsenic preparations have previously been given.

A certain number of cases of affection of the brain and of the optic, acoustic and other cranial nerves had been observed after the use of salvarsan and had been looked on by various observers as a direct effect of the remedy. Dr. J. Benario,[5] however, reports from Ehrlich's institute the results of the study in this regard of the details of 14,000 cases in which salvarsan was used. Among these but 126 patients were found to have presented nervous symptoms, and of these nine were transitory, like the Herxheimer skin reaction that had been observed. Only a very small number (4.2 per cent.) of these were in the primary stage, but by far the largest number (88 per cent.) occurred during the early second-

2. Aberlin: München. med. Wchnschr., May 9, 1911.

3. Heuser: Med. Klin., April 9, 1911.
4. Bornstein: Deutsch. med. Wchnschr., Jan. 19, 1911.
5. Benario: München. med. Wchnschr., April 4, 1911.

ary stage before the ninth month. Of these symptoms nearly all developed within four months from the time of injection. Benario agrees with Ehrlich that these symptoms are not toxic, but that they are produced by syphilitic affections due to the action of spirochetes which had escaped, and calls attention to the fact that they usually occur in the early secondary stage, in which an extensive dispersion of spirochetes is observed. Alt[6] says that wherever syphilitic new formations or tissue changes are present, salvarsan produces a localized hyperemia with accumulation of leukocytes, a kind of inflammation. The arguments in favor of the syphilitic rather than the toxic origin of these nerve affections are:

1. The long period elapsing between injection and the nervous manifestations.
2. The nature of the pathologic process which, as is best shown in the optic nerve, is an irritation and inflammation and not a degeneration as with other arsenic preparations.
3. The fact that they occur almost exclusively in the early stages of syphilis.
4. They have never been known to occur in non-syphilitic patients treated with salvarsan.
5. Their curability with salvarsan or other anti-syphilitic remedies.
6. The fact that they occur almost only after small doses of salvarsan.
7. The fact that precisely the same symptoms occur after mercurial treatment.

Before the discovery of salvarsan Naunyn had already observed that 20 per cent. of the cases of cerebral syphilis occurred during the first year after infection, and Mauriac in 1890 reported similar observations. He estimated that one-third of the cases he had observed occurred during the first year. Careful statistics seem to show that cerebral symptoms are no more frequent since the use of salvarsan than before. Cerebral symptoms are more apt to occur in extragenital chancres and most frequently in the cephalic forms. Hoffman and Ehrmann have found spirochetes in the lymph-spaces of nerves, and it seems plausible that under such conditions these should pass directly into the cerebral structures. It has been observed that the first sign of cerebral syphilis is severe headache, indicating the invasion of the brain by the spirochetes, and this fact may be considered a guide to further vigorous treatment after the use of salvarsan in such cases. The nerves most frequently involved are the opticus, the acusticus, and less frequently the orbital nerves. These nerves run in firm canals in which the spirochetes may escape the circulating salvarsan, and in which slight syphilitic lesions or secondary hyperemia may give rise to evident effects through compression of the nerves.

An interesting observation was made by Ehrmann, who found toxic action on the acoustic nerve two months after an intramuscular injection of salvarsan. A gangrenous focus had developed which he excised. There followed improvement of the aural symptoms. In 5.69 gm. of the broken-down material he found 3.2 mg. of arsenic and he believes that the toxic effect was due to some modification of the drug in the muscular tissue.

A small number of cases of inquiry to the kidney following the intramuscular injection of salvarsan have been reported by Geronne, Jadassohn, Scholz, Mohr and others. In some of the instances the effects were merely transitory, consisting of suppression of urine, followed by the excretion of small quantities containing albumin and casts, whereas in others true hemorrhagic parenchymatous nephritis resulted. These observations seem to indicate that salvarsan undergoes modification in the muscular tissue, giving it toxic properties.

In the parasyphilitic lesions like tabes dorsalis, the effects of salvarsan have not been brilliant. In some cases improvement has been observed, but as a rule the results are negative. Possibly further observations and combinations with other remedies may lead to a change of opinion. Still it is quite doubtful that a destruction of the spirochetes will remove the degeneration of the nerve tissue which causes the symptoms of the disease.

It has been found that it is not safe to give infants with hereditary syphilis the salvarsan directly, as the immense quantities of the endotoxins which develop from the spirochetes killed are apt to be fatal in their effects. According to Taege, the milk of syphilitic women who have received salvarsan, however, is distinctly curative for such infants. Although Taege found no arsenic in such milk, the contrary observation was made by Scholz of Koenigsberg, so we are in doubt whether its curative effect be due to the arsenic or to the antibodies in the milk.

Jesionek[7] does not agree with Taege and Duhot in their observations. He found arsenic in the milk of syphilitic women who had received intravenous injections of salvarsan, using 100 c.c. of the milk in making the test.

A goat injected intravenously with 0.4 gm. salvarsan gave the arsenic reaction in the milk for a number of days, but the quantity was variable, being greater on the fifth than on the second day. Jesionek observed a violent eruption of fresh syphilids in two infants whose mothers had received intravenous injections of salvarsan. He believes that in the milk of the mother there was arsenic, syphilitic endotoxins as well as antibodies, and that the organism of the infant was overwhelmed with endotoxins from the mother and also with those derived from the spirochetes destroyed in the body of the child by the arsenic in the milk. He obtained better results by feeding a syphilitic child with the milk of a goat that had received an injection of salvarsan, and points out that we are by no means called on to accept the advice of Taege and Duhot that the infant should be fed with the milk of a syphilitic mother or wet-nurse who has been treated with salvarsan, but that on the other hand it may be found to be more advantageous to administer the remedy to goats or cows and to feed the child with milk from such animals. He suggests that the arsenic may undergo some modification in the body of the animal rendering it harmless, and that possibly other preparations of arsenic may have the same effect. These observations open up a large and promising field of exploration.

The attempt has been made to use the serum of human beings treated with salvarsan as a remedy for syphilis. Marinesco[8] injected a few patients with such serum, but his results were disappointing.

IN OTHER DISEASES

Besides being a specific for the treatment of syphilis, salvarsan probably destroys other forms of spirilla. This has been undoubtedly proved to be true in relapsing fever, in which the administration of a single dose intravenously has been followed by complete cure in a large number of cases, as was first shown by Iverson.[9]

6. Alt: Deutsch. med. Wchnschr., 1910, No. 10.

7. Jesionek: Munchen. med. Wchnschr., May 30, 1911.
8. Marinesco: Riforma med., Jan. 1, 1911.
9. Iverson: München. med. Wchnschr., Aug. 16, 1910.

In frambesia similar but not such striking results have been observed. Rost[10] treated eighteen patients with intramuscular injections of oleaginous emulsion. Nine were cured in from six days to six weeks; three were markedly improved; two showed signs of the disease in the nose only after the treatment; three improved somewhat and then remained stationary and one improved and then relapsed.

Nichols[11] reports from the Rochefeller Institute that rabbits inoculated with spirochetes of yaws from a colored soldier from the Philippines were cured by a single dose of salvarsan, the spirochetes disappearing in twenty-four hours and the lesions in two or three days.

Several patients with Vincent's angina have been cured by salvarsan. It has also been used in leprosy, but without any very decided effect.

In tertian malaria intravenous injection has sometimes, but by no means always, been followed by cure, with disappearance of the parasites. The quartan and the estivo-autumnal forms are far more resistant.

Salvarsan has also been successfully employed in the treatment of filaria.

EFFECTIVENESS OF SALVARSAN

Although nearly all writers unite in ascribing remarkable curative powers to salvarsan, the larger majority do not believe that it alone suffices invariably to eradicate syphilis. Inasmuch as many of the syphilitic foci are devoid of blood-vessels, and many of the smaller vessels are thrombosed, or are the seat of endovascular changes, it can readily be understood how many of the spirochetes might escape the circulating salvarsan. It is probable on this account that only in the early, primary stages of syphilis do we usually observe the brilliant effects that were obtained in experimental syphilis of animals. It has been found that if salvarsan be injected in the primary stage, especially if the lesion be excised or if an injection of a solution of mercury bichlorid be made into the tissue under the chancre, secondaries will not appear. In the later stages apparent cures are frequently followed by relapses, so that various clinicians have used different methods of combating the disease.

Lesser,[12] for example, advises that the administration of salvarsan should be guided by the Wassermann reaction and that patients should be considered cured only when that reaction is permanently negative. He believes that we should strive to tone up the organs with repeated small doses to produce antibodies rather than to attempt to kill the spirochetes at one dose. He believes that the large doses have a toxic effect and impair this function rather than stimulate it in the various organs. His method has been to give 0.1 gm. of salvarsan suspended in oil of sweet almonds weekly until the Wassermann reaction is negative.

Spiethoff advises intravenous injection followed in four days by subcutaneous injection, and a month later by a second intravenous administration. Kromayer[13] found the best results from intramuscular injections of 0.2 gm. suspended in paraffin oil given every other day until six doses had been taken, followed by a course of mercury. Whereas he had observed 32 per cent. of relapses in a large number of patients whom he had formerly treated with single large intravenous injections, after the chronic treatment with salvarsan alone, in 100 cases but 4 per cent. of relapses occurred, and in the same number of patients treated by his combination of salvarsan and mercury no relapse occurred.

Benario advises, as Ehrlich suggests, that first a vigorous intravenous injection be given, followed by forced mercurial treatment, succeeded by further intravenous injection of salvarsan.

Gennerich treated twenty-six patients in the primary stage with salvarsan and mercury and in twenty-two no secondary symptoms occurred within six months.

Whether the beneficial effects of weekly repeated injections of small doses of salvarsan recommended by Kromayer and Isaac, either with or without mercury, will be confirmed by experience remains to be seen. Benario advises abstinence from alcohol and tobacco during the treatment, as these predispose to cerebral affection, and urges that at the first sign of cerebral involvement indicated by headache, vertigo, buzzing in the ears or disturbance of vision, vigorous measures should be resorted to.

CONCLUSIONS

In summing up the results of the observations thus far made with salvarsan, the following conclusions may be stated:

1. In salvarsan we have one of our most powerful weapons in the treatment of syphilis.
2. In the early stages of the disease it exerts its greatest influence.
3. As a rule a single injection will not suffice to cure.
4. It is best used in combination with mercury.
5. It should not be employed after other arsenic preparations have been used.
6. It should be avoided in severe affections of the brain or heart, in putrid bronchitis, in severe diabetes and in all conditions of decrepitude.
7. It is of service in various diseases due to spirillæ.

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10. Rost: München. med. Wchnschr., May 23, 1911.
11. Nichols: THE JOURNAL A. M. A., July 16, 1910.
12. Lesser: Berl. klin. Wchnschr., Jan. 23, 1911.
13. Kromayer: Deutsch. med. Wchnschr., Dec. 8, 1910.

THE INFLUENCE OF TREATMENT ON THE WASSERMANN REACTION IN SYPHILIS *

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In the light of our present knowledge, the treatment of syphilis without the certain information to be gained by means of the Wassermann reaction is more or less uncertain, and the same may be said for the diagnosis in many of its obscure and protean manifestations, conditions which were up to the last few years the subject of therapeutic diagnosis and guesswork.

For the past two years we have treated and kept under observation a series of patients in the military service at Vancouver Barracks, Washington. The clinical work was performed separately from the laboratory work; in fact, the former was done by Reasoner at Vancouver Barracks, and the latter by Matson at Portland, Oregon. In this manner it is believed that the personal element was largely eliminated.

In this series we have used various methods of treatment and followed closely over sixty cases of syphilis running all the way from initial lesions to cases of eight years' standing. In addition to this we have performed

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over 1,550 Wassermann reactions on the 1,200 enlisted men of the post. This information has been compiled by a card-index system and constitutes a part of the hospital records, and in a number of cases has proved an invaluable aid. Under recent regulations of the Surgeon-General's office a case of syphilis once established is not lost sight of, but a record of the case follows the soldier through all reenlistments and transfers until he is pronounced cured.

While our predilection was for the injection method of mercurial medication, yet it was deemed advisable to carry on a certain number by inunction and oral medication. An added value pertains to this series, due to the fact that under military rule it is possible to compel the treatment along the lines laid down, and also from the fact that we do not so easily lose sight of our patients. Wassermann reactions were performed at varying intervals from two weeks to several months apart. We have felt that "the proper treatment of a patient with syphilis does not consist merely in administering a definite quantity of mercury or potassium iodid, but in giving sufficient to acomplish a destruction of the organism and prevent their propagation as may be determined by the Wassermann test."

Empiricism has established the rule of from two to three years' medication. Before the days of the Wassermann reaction this was accepted as proper, but we now know that this method of treating may be not only inefficient, but often dangerous. It is probable that some cases do not require such long continued medication, and true that many patients are not cured at the end of this period, as the frequency of ataxia, paresis, cardiovascular diseases and other manifestations of latent lues attest. If a patient is discharged as cured after a certain prescribed course of treatment without the Wassermann test he is done a great injustice, since even years may elapse before a return of manifestations. The disease may then be so firmly established that recovery cannot take place. So throughout an endeavor was made to use this reaction as an index to treatment. Three years' experiment with the bichlorid was not entirely satisfactory and after some preliminary experiment with it and the various other forms, the following formula was adopted:

℞

Hydrargyri iodidi rubri	2.
Potassii iodidi	.324
Olei gossypii seminis	100.

Triturate the first two constituents together, first dry, then in the presence of a small amount of the oil; then add the remaining amount of the oil.

Sig.—Inject twenty drops one to three times weekly into the buttocks.

It is true that this causes some pain, which is of course a great objection in private practice, and as much of an objection in the military service, unless we can feel assured that we will obtain a corresponding advantage. In our preliminary work it seemed to give us a slightly quicker action than the insoluble salts, and with less danger of cumulative action, there was no hesitancy in pushing the treatment when circumstances required it. We had two abscesses by this method during a short time that an inexperienced substitute was attending to the injections. Following several weeks' experience with mercurial oil we had five abscesses, despite all aseptic precautions. None of the patients treated by the injections was salivated, though in several the treatment was pushed. In a large number of the cases the secondaries did not appear or were so slight as scarcely to be noticeable. With the exception of the seven cases noted above, none of the men was incapacitated from duty. The average time to obtain a negative reaction in cases of not over a year's standing was only slightly over two months.

Three cases were treated by inunction and the time required to obtain a negative reaction was slightly under that required by the injection series. However, from a study of the cases we are not inclined to believe that there would be very much difference in a larger series. This method has certain advantages and disadvantages which are obvious, and should not be lost sight of.

The results obtained by oral administration were not so satisfactory. The time required to obtain a negative reaction was longer, there was a greater amount of digestive derangement, anemia and loss of weight, and the secondary manifestations were more apt to appear and always more difficult to relieve. One case of headache which could not be controlled was shortly relieved when treatment was changed to the injections.

We have proved to our satisfaction that potassium iodid does not affect the Wassermann reaction.

Since our entire series was composed of either old cases, in patients who had received more or less of a routine treatment, or of recent ones, none of them the type of far-gone cases seen in dispensary practice, fairly good results would be expected by any accepted treatment.

The fact was forced on our attention that those who were addicted to the use of alcoholics developed secondaries which were difficult to bring under control and the time required for a negative reaction increased, or perhaps only a partial reaction was obtained. In two cases the secondaries developed and remained though a negative reaction was obtained. It is not well to make promises to a syphilitic who is addicted to the excessive use of alcoholics.

During the summer of 1910, as a result of target practice held away from the post, the Tacoma Military Tournament, the maneuvers and the forest fire service, in all of which a larger part of this command participated, engaging in very strenuous labor, and exposed to extremes of heat and cold, it was impossible to keep up our rather paternal treatment for about four months. As a result of this all of the patients under treatment for less than nine months lapsed back to + or + — or trace. Those under treatment for over a year remained negative, or in some cases became + — (partial-positive). In all of these relapses it was noted that those addicted to the use of alcoholics were in the lead.

Treatment was resumed in most of the cases the last of October and continued until the middle of December, 1910, when in anticipation of the use of salvarsan the mercurial treatment was, with two exceptions, suspended. Since that time we have, with the exception of some recent cases, relied entirely on the salvarsan in order that we might better come to a conclusion as to its worth. We have felt justified in doing this, as the military patients will not be lost sight of any any returning manifestations can then be treated accordingly. In all there were thirty intramuscular and fifty-nine intravenous injections given to sixty-five patients. In forty-four cases the first injection of salvarsan has been given at the following intervals after the appearance of the initial lesion:

One at three days, one at seven days, two at nine days, and one at eleven days; six at from one to six months; nine from six to twelve months; ten from one to two years; six from two to three years; six from three to eight years; two

doubtful. Of these cases the earliest positive Wassermann reaction was obtained three days after the appearance of the initial lesion.

The following notes were made on incubation periods of fifty cases:

Six cases average sixteen days, of which two were at fourteen days; twenty-two between twenty and thirty days, average twenty-two days; six cases between thirty and thirty-five days, average thirty-one days; in three cases the statement given us was that the period of incubation was 40 days each. There were ten mixed infections whose period cannot of course be given. There were six extragenital lesions, two on the ala of the nose, two on the lip, one on the cheek and one on the tonsil. The origin of the infection can be traced in three of these.

In twenty-seven intramuscular injections there was one abscess which occurred in a woman who went to her home following the injection and on the third day, in spite of directions to the contrary, rode quite a distance in a wagon over rough roads. After an interval of three months the abscess is still discharging. The average time in hospital for twenty-four of the cases was five and one-half days and all were retained until they felt able to do duty.

Two cases of urticaria appeared during the intravenous injection, involving the entire body and lasted two hours each. One patient showed a temperature of 102.5 F., which was the highest noted. No relation could be observed between the severity of the bodily reaction and the results produced, and this series has not yet proved that any relation exists between the severity of the case and the amount of the reaction.

Following the intravenous injection, about three-fourths have had a noticeable reaction of greater or less severity, and practically the same number following the intramuscular.

The intravenous injection of alkaline solution has many advantages over any other form of administration in as much as it requires less time and is easier. We have not found 0.5 to 0.6 gm. to be an adult overdose, given either intramuscularly or intravenously, and ordinarily the dosage has varied between those limits.

There were eight patients who gave a negative Wassermann at the time of the injection. It is rather interesting to follow the Wassermann record afterward. In these cases we assume that the organisms were not present in sufficient numbers to produce a reaction, but the injection of the salvarsan accomplished the destruction of organisms sufficient to produce antibodies which manifested themselves as a + or + — Wassermann, which remained for a time and then disappeared.

From an examination of nearly ten thousand specimens of blood we have formulated the following conclusions:

1. In suspected syphilis (untreated) a negative reaction during the first week of the primary sore is of no value (reactive substances have not formed in sufficient quantities to elicit the reaction).

A negative reaction in untreated cases after the fourth or fifth week of a suspected primary sore, or in cases of suspected secondary or tertiary manifestations, speaks strongly against syphilis, but the test should be repeated. Some cases of malignant syphilis run their course Wassermann-negative because there has been no attempt on the part of the individual to respond with antibody formation. The reaction is often absent in mild forms of infection and in latent cases because an insufficient number of spirochetes are present to elicit a stimulus necessary for the formation of reactive substances. The reaction in many of these cases, especially alcoholics, fluctuates between a negative and a positive, and unless repeated tests are made the positive reactions escape our observation. We have often observed in cases of this type that the reaction may appear for the first time after anefficient course of treatment, but it soon disappears and may remain absent. This is to be looked on as a favorable sign, because it shows that the body has reacted to the substances liberated from the bodies of the killed spirochetes.

A positive Wassermann reaction is a sign of syphilis which is active, irrespective of clinical manifestations. It may mean changes in the internal organs without recognizable external signs or symptoms. The test, however, in the presence of a negative history should be repeated as a precaution against technical errors.

2. We have been able to show that effective treatment will convert a positive into a negative reaction, but the reaction usually recurs during the course of a few months if treatment is suspended. A constant positive reaction in spite of energetic treatment is not to be regarded as favorable if occurring after the first year or two, and it is thought that many of these patients are undoubtedly candidates for paresis and ataxia.

We have often observed that while the treatment was energetic a permanent — could not be obtained, this being especially the case in alcoholics. A disappearance of the reaction was also noted when patients were persuaded to give up their intemperance.

The interpretation of a partial reaction is at times exceedingly difficult, and the decision must often depend on a consideration of clinical data. It has been our habit in all cases presenting partial reactions to make repeated examinations, and if the reaction is constant, a disappearance or intensification will often follow the administration of mercury or salvarsan, thus proving to our satisfaction its specificity.

Our task of interpreting a partial reaction has been much easier since we have adopted the use of specific and non-specific antigen in full and half quantities.

The behavior of the Wassermann reaction following the injection of salvarsan is illustrated by the following reaction types:

TYPE 1.—Reaction positive or strongly positive; remains so in spite of all treatment; illustrated by the following case:

Case 1.—Mr. G., aged 30, civilian, single, contemplated marriage; initial lesion three years previously, and lasted six weeks; came on two weeks after intercourse; swelling of glands of neck and groin, and cutaneous manifestations; took seven months' treatment in an advertising institute, after which he had one year of inunctions and eight months of potassium arsenite; treatment discontinued five weeks before Wassermann. Result +++. Since that time he has had both intramuscular and intravenous injections of salvarsan and a course of mercurial injections but without any effect on the reaction; has had no external manifestations for two years; probably a candidate for paresis.

TYPE 2.—Reaction positive, or strongly positive; goes down to partial positive or negative and then returns to original. This type is illustrated by the following case:

Case 2.—Male, aged 30, single; initial lesion appeared Jan. 3, 1910; received eight months' treatment, but following intermission there was a return of the + Wassermann. Following intramuscular and intravenous injections the Wassermann became negative in twenty-three days and remained so until the end of 130 days when it became positive again.

TYPE 3.—Reaction positive, or strongly positive; goes to negative and remains there; illustrated by the following case:

TABLE SHOWING THE INFLUENCE OF TREATMENT ON THE WASSERMANN REACTION IN SYPHILIS

Case Number	Age (years)	Duration of Disease (years)	Time Observed (years)	Reactions Before Infection	Mercurial Treatment (years)	Number of Reactions	Time Observed Under Salvarsan (months)	Manifestations at Administration	Injections †	Reaction at Injection	Repeated Negative Reaction (days)	Relapse in Reaction (days)	Relapse in Manifestations	Series
6	25	1 2/12	1 1/12	None	8/12	7	1½	None	M	+—	7	...	..	Military
35	22	1 4/12	1 4/12	None	1	7	5½	Slight mucous; relieved	V-V-V	+	7	80	+	Military
36	24	2 9/12	1 5/12	None	8/12	5	5½	None	V-V	+	12	80	+	Military
9	24	5	7/12	None	7/12	6	7½	Nasal tertiary; relieved	M	+	12	...	..	Civilian
10	26	4	1 6/12	None	1 2/12	8	½	None	M	+	13	...	..	Military
2	30	7/12	7/12	None	2/12 Late	10	7½	None	M-V	+	13	...	..	Military
		Twenty to thirty days *												
5	28	5/12	5/12	—	2/12 Late	7	1½	None	M-V	+	23	...	..	Military
13	32	5/12	4/12	—	45 days	12	3½	None	M	+	23	...	..	Military
16	30	1 plus.	8/12	None	8/12	13	6½	None	M-V	+	23	130	+	Military
		Thirty to forty days *												
23	27	2 6/12	1 8/12	None	1 8/12 Irregular	7	4	Relieved; macular eruptions; slight mucous.	M-V	—	30	110	+	Military
24	24	1 1/12	9/12	—	9/12	7	5½	None	M-V	+	30	...	..	Military
28	29	1 1/12	8/12	—	8/12	7	4½	Slight mucous; relieved	V	+	38	...	..	Military
37	30	3 (days)	.....	—	.....	8	5½	Initial lesion cured	V-V	+	33	...	..	Military
		Forty to fifty days *												
19	30	7 or 8	6/12	None	6/12	5	5	Tertiary bone; relieved	M	+	40	...	..	Civilian
22	20	5/12	.....	—	.....	7	4½	Slight mucous; relieved	M	+	45	...	..	Military
25	22	2	2/12	None	2/12 Early	11	4	None	M	—	40	...	..	Military
40	24	9 (days)	.....	—	.....	5	2	Initial lesion; cured	V	+	40	...	..	Military
46	24	9 (days)	.....	—	.....	5	2	Initial lesion; cured	V	+—	40	...	..	Military
41	26	2 5/12	1	None	8/12	5	2½	Spastic paraplegia; improved	V-M	+—	42	...	..	Civilian
		Fifty to sixty days *												
34	29	3	1 7/12	None	1 7/12	7	2½	None	V	+—	50	90	+	Military
		Sixty to seventy days *												
15	23	1 2/12	9/12	None	9/12	11	7½	Enlarged glands; cured	V	—	60	...	..	Military
21	36	5/12	3/12	—	3/12	10	6½	None	V	+	60	...	..	Military
38	24	4/12	3/12	—	.....	6	5	Induration; cured	V	+	60	75	+	Military
5	26	6/12	3/12	—	2/12	15	7½	None	V	+	68	...	..	Military
31	27	1	7/12	None	5/12	8	6	Glands enlarged; cured	V-V	—	60	...	..	Military
		Eighty to ninety days *												
4	29	5/12	5/12	—	3/12	9	7½	Relieved; macular eruptions; slight mucous.	M-V	—	80	135	+	Military
20	23	11 (days)	.....	None	.....	9	7	Initial lesion; cured	M-V	—	86	210	..	Military
30	31	4	2/12	None	Irregular	5	7	None	V	—	90	...	..	Military
14	26	3/12	3/12	—	2/12	12	6	Marked macular; relieved	M	+—	90	...	..	Military
29	25	6	3/12	None	Irregular	4	6½	None	V	+	90	...	..	Military
18	22	5	2/12	None	Irregular	9	5	None	M-V	+	120	Never negative		Military
		No positive appeared—									Trace			
32	24	7 (days)	.....	—	.....	7	4	Initial lesion	V-M	—	Never became positive			Military
		Remained negative throughout—												
26	25	1 5/12	1 1/12	None	1 1/12	5	4	None	V	—	Remained negative.			Military
		Remained partial positive throughout—												
47	61	30	2/12	None	Irregular	5	2	Headaches, etc.; relieved	V-V	+—	Remained partial +			Civilian
		Cases lost by transfer, discharge, etc.—												
1	33	1 6/12	1 2/12	None	1 2/12	8	1½	Headache, mucous; relieved	M-V	—	No recurrences, 45 days			Military
7	24	6/12	3/12	—	1/12	6	4	Voice hoarse; relieved	M	+	No recurrences 20 days, but +			Military
11	27	1	8/12	None	8/12	7	1½	None	M	+	No recurrences 45 days, but +			Military
12	22	1 2/12	9/12	None	9/12	6	1½	None	M	+—	Lost in 20 days +			Military
27	27	8/12	6/12	None	6/12	4	1	None	V	+	Lost in 20 days +			Military
39	22	9 (days)	.....	None	.....	3	1	Initial lesion	V	+	20 days; not seen afterward			Military

* Lines twenty to thirty days, etc., indicate time required after administration of salvarsan for production of negative Wassermann reaction. † M = intramuscular; V = intravenous.

Case 3.—Male, aged 26, single; initial lesion Sept. 10, 1910; chancre on right side of upper lip, the result of kissing a prostitute; mucous patches in mouth and throat; enlarged glands. Following intramuscular injection the patient developed a negative reaction in sixty days, which has remained negative for six months.

TYPE 4.—Remains partial positive throughout; illustrated by the following case:

Case 4.—Male, aged 61, married, no children; initial lesion was contracted in 1881; rather indefinite history of secondaries shortly afterward. Treatment was irregular. During the year previous he had taken systematic injections of salicylate of mercury; complained of constant headache and pains in right side of body; reaction ±. Following intravenous injection of 0.5 gm. salvarsan April 19, 1911, the patient had a mild reaction and in two weeks was relieved of the above manifestations. Forty-one days after the first injection the patient was given a similar one which produced a more noticeable febrile reaction. The patient continued to improve in general condition, appetite, etc. The reaction remained + — as at first.

TYPE 5.—The reaction is negative and remains so throughout; illustrated by the following two rather unusual cases:

Case 5.—Male, aged 25, single; initial lesion appeared Sept. 20, 1909; mucous patches and macular eruption; about nine months' treatment by injections; reaction negative at the time salvarsan was given; an intravenous dose of 0.55 gm. was followed by strong bodily reaction; reaction had remained negative for six months.

Case 6.—Male, aged 24, contracted two characteristic lesions on penis Feb. 20, 1911, thirty-five days after exposure. Seven days after the appearance of the lesion the patient was given 0.6 gm. intravenously. In four days both lesions had almost disappeared, but the striking feature is that in twelve days they returned again as at first. The patient was then given an intramuscular injection of 0.6 gm., after which the lesions again left in about ten days and had not returned in almost four months, during which time the reaction remained negative.

TYPE 6.—The reaction is negative at the time of injection of salvarsan but goes up to partial positive or positive and then returns to negative. There were eight cases in this class, which is illustrated by the following cases:

Case 7.—Syphilis contracted in July, 1909, had been thoroughly treated at the start, and though the patient suffered from a mild headache and a slight sore throat (supposed to be due to alcoholics), yet a positive reaction was never obtained during the year he was under observation. The headache and sore throat were relieved in thirty-six hours and did not return. Six days after the first injection the reaction lapsed to partial positive and in thirteen more days back to negative, where it remained. The intramuscular dose was 0.6 gm., the intravenous 0.5 gm.

Case 8.—The reaction fluctuated between positive and negative. The disease had been contracted five months previously and was thoroughly treated for three months. The reaction was negative at time of injection, became partial positive in six days and negative again in thirteen days; it was again partial positive at the end of twenty-four days. It then became negative, in which condition it had remained for four months. The patient was given intramuscularly 0.6 gm. and gained 12 pounds in one month.

Case 9.—Syphilis contracted March, 1909, and treated; reaction negative at time of injection; remained partial positive for forty-five days afterward and then returned to negative, in which condition it had remained for four and one-half months. The dose intramuscularly was 0.6 gm. The patient gained 5 pounds in three weeks.

Case 10.—Contracted February, 1910; extragenital lesion on cheek; treatment thorough; reaction negative at time of injection; partial positive for one month afterward, since which time for five months it had remained negative.

An especial value pertains to most of the recent cases, due to the fact that during the Wassermann survey of the enlisted personnel, we had obtained reactions before the disease was contracted. Thus of the entire series we have negative reactions obtained on sixteen men who afterward contracted syphilis.

The following histories are presented of four patients who were injected at very short intervals after the appearance of the initial lesion. Of these four, negative reactions were obtained from all before the disease was contracted.

Case 11.—Patient aged 30, single; characteristic initial lesion appeared on penis after intercourse with same woman two and five weeks before. A point of particular interest is that the *reaction was positive three days after the lesion first appeared*, at which time an intravenous injection of 0.55 gm. salvarsan was given. The lesion disappeared at the end of eight days. At the end of twenty-eight days the Wassermann had become minus partial positive; in five days more it became negative and had remained so for four months. A second intravenous injection of 0.6 gm. was given forty days after the first. The patient gained 5 pounds in one month.

Case 12.—Male, aged 24, single; previously described under Type 5. The patient had a double lesion thirty-five days after exposure which disappeared four days after intravenous injection of 0.6 gm. salvarsan, but returned in twelve days, and again left in ten days following intramuscular injection of 0.6 gm., and did not return. During the four months this patient was under observation, we were able to obtain nothing but negative reactions.

Case 13.—Male, aged 24, single. Characteristic lesion appeared April 14, 1911, one month after intercourse with a prostitute. Reaction five days after lesion was partial positive. A 0.6 gm. intravenous injection of salvarsan was given nine days after the lesion appeared. The induration left in twelve days and the Wassermann became negative in thirty days and remained so to the time of this report. The patient gained 3 pounds in one month.

Case 14.—Male, aged 23, single. Characteristic lesion appeared on penis Jan. 24, 1911, between three and four weeks after intercourse with a prostitute. Six days afterward the Wassermann was negative. A 0.6 gm. intramuscular injection of salvarsan was given eleven days after appearance of lesion, and strong bodily reaction followed. The lesion was gone ten days after injection. Eight days after injection the reaction became + — and remained so until March 19, at which time an intravenous injection of 0.6 gm. was given with no bodily reaction. The reaction had now been negative for three months at the time of this report, and the patient had gained 5 pounds in one month.

These patients will be followed closely and an attempt made to cure them by salvarsan alone. Case 32 seems to offer some prospect of a cure.

CONCLUSIONS

1. The Wassermann reaction not only reveals the nature of the disease, if syphilis, but it serves as a guide for individualizing treatment.

2. It has shown the necessity of more energetic and individual treatment than has been the custom heretofore. Fully half of the patients discharged as cured are only half way to their goal and in reality are latent syphilitics.

3. The early administration of mercury may cause a disappearance of manifestations, with little influence on the spirochetes, the organisms remaining latent for years, and under favorable conditions renewing their activity with reappearance of manifestations.

4. A positive reaction may be made to disappear by energetic, specific treatment, and this sustains the conclusion that a positive reaction means active syphilis, even though there be no other evidence, and speaks for renewal of treatment. Patients who have been well treated give negative reactions, whereas those poorly treated give positive reactions even years later. The

number of inunctions or injections of mercury or salvarsan injections necessary to convert a positive into a negative reaction varies with each patient and should be controlled by the blood examination. A positive reaction in tabes is little affected by treatment.

5. If mercury is used, systematic and consecutive treatment is necessary and this should be begun early, and during the first year no lapses of over one month permitted or much that has gained will be lost.

6. The use of alcohol has a bad effect on syphilis, predisposing to secondary and later manifestations, and, to a certain extent, nullifying the treatment.

7. In patients recently treated by mercury, and giving a positive reaction, the time required for a negative Wassermann with salvarsan may be much reduced. In very recent cases, or older cases not under the influence of mercury, there may be no shortening of the time.

8. In cases of a mercury-produced Wassermann negative at the time of injection, the reaction will generally revert to + —, or in some cases to +, and then at varying intervals go back to —, from which subsequent injections may not change it. This is suggested as a possible diagnostic procedure in cases in which the question of a cure is open to doubt and it is not desired to suspend treatment if the infection still persists.

9. The intravenous method is preferred to others as being easier, more efficacious, less painful and less time being required by the patient.

10. At least two injections should be given and more if indicated and these injections should be given about a month apart.

11. An otherwise healthy adult will take from 0.5 to 0.6 gm. intravenously without untoward effect.

12. Unless one is prepared to maintain a very thorough watch over the patient, the salvarsan treatment should be reenforced with mercurial medication, and in any event better results will be obtained thereby.

13. In syphilis the tonic effect of salvarsan is far beyond that of any other drug at our disposal. Its effect on the weight, strength, appetite, mental and general condition approach the marvelous.

14. Whether or not salvarsan will cure syphilis remains to be seen, but it must be admitted that it will do some things that mercury will not do, and therefore must have a place in our therapeutics, most especially in those cases in which mercury is not well tolerated.

15. Up to the time of this report there had been no recurrences of manifestations, but in those under observation for seven months the reaction has returned to + or + — in 22 per cent. In those under observation for four months 10 per cent. of the reactions have lapsed as before stated.

The Open Field of Internal Medicine.—In its rational development internal medicine is the laggard among the medical sciences, having always been centuries behind such branches as surgery and anatomy. This is natural, since the data of the latter are superficial and obvious, while those of internal medicine are deep-seated, obscure and inaccessible, and allow much play for theory or imagination. Moreover, internal medicine lacks the spectacular appeal which is exerted, for example, by surgery. Yet though its data are inaccessible, its problems difficult, its therapeutic possibilities limited, the greater the difficulties the greater is the glory of surmounting them, and it is evident that internal medicine has at last entered on a career in honor and efficiency second to none.—Nichols in *Popular Science Monthly.*

EIGHT MONTHS' EXPERIENCE WITH SALVARSAN AT THE NEW YORK SKIN AND CANCER HOSPITAL*

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A few months ago we expressed some opinions on the value of salvarsan, based in part on our own experience and in part on that of others. Our present communication is a detailed account of work that has been done during the past eight months, and the conclusions drawn are based entirely on our own experience.

The greater part of our observations have been made at the New York Skin and Cancer Hospital in the service of Dr. George Henry Fox. At the time of writing, 128 injections have been given to 100 selected patients. The first ten patients were treated by the subcutaneous method (Wechselmann), after which intramuscular injections of an alkaline solution (Lesser method) were tried in twenty cases. Later, the intravenous method was employed in sixty-nine cases and intramuscular injections of an oily suspension in twenty-nine cases. The treatment was repeated in twenty-one of our patients, three of them receiving three, and two receiving four separate injections.

We have been fortunate in being able to follow a large proportion of the cases both clinically and serologically. Shortly before completing our report, we had personally observed or received letters from eighty-five of our patients. Of the remaining fifteen cases, ten had been under observation for at least a month.

Three patients with primary lesions were treated before the appearance of any general manifestations. They were unfortunately not seen at an early enough period to attempt to abort a general infection, as at the time of treatment the Wassermann reaction had already become positive.

Our early opinions regarding some of the cutaneous lesions of syphilis have not materially changed as a result of further experience. The macular syphilids have not disappeared with any surprising rapidity, and the papular syphilids have generally proved pretty resistant to treatment. Gummatous lesions have generally yielded to salvarsan in a most satisfactory manner, while mucous patches and condylomata have regularly disappeared in a most surprisingly short time.

In four cases (68, 74, 58 and 77) of late syphilis of the palms and soles, lesions which are notoriously resistant to mercury, the results of single injections of salvarsan have been extremely gratifying. One of these patients (68) had suffered from an extensive syphilid of the sole for twelve years, in spite of a good deal of treatment with mercury by several competent syphilologists. One month after a single intramuscular injection, the eruption had completely disappeared. In the other cases, the lesions had existed for three years, two years and two months respectively and disappeared in an equally satisfactory manner. Indeed, in one case a verrucous syphilid of the palms entirely cleared up in one week after an intravenous injection.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

* Owing to lack of space, several pages of tables detailing the cases are here omitted. They are included in the Transactions of the Section and in the authors' reprints. A copy of the latter will be sent by the authors or by THE JOURNAL on receipt of a stamped, directed envelope.

Four of the patients suffering from early syphilis presented an iritis which disappeared at the end of three weeks. In one case the iritis became more severe after treatment and on the fourth day had involved the other eye. A most excellent result was obtained in a case (57) of syphilitic neuroretinitis in a patient who had been infected a year and a half previously. Before injection her vision (examined by Dr. H. H. Tyson) was 20/100 in the right and 20/70 in the left eye. At the end of sixteen days there was a decided clearing of the fundus and she could read 20/30 minus with both eyes. One week later the fundus was practically normal in appearance and the vision was 20/20 minus in the right and 20/30 minus in the left eye.

Headaches occurring in both the early and late stages of syphilis were generally very favorably affected by salvarsan. Pains accompanying early manifestations, istration that we have used. Three patients relapsed after one injection and four cases after two injections had been given. Three patients relapsed or remained stationary after the first, but responded favorably to a second injection. The patients in whom failures, or at least unfavorable results were obtained, included the case of tabes and a case (16) in which the diagnosis was in some doubt (gummatous vs. varicose ulcers). In addition, a case of gummatous ulceration of the leg showed no response to treatment at the end of three weeks, while the results in three others (38, 43 and 87) must be considered unsatisfactory. In all there were fifteen cases in which either relapse or unsatisfactory results were observed.

Many of the patients in whom excellent results were obtained by salvarsan had been previously treated by mercury without success. It is probable, however, that

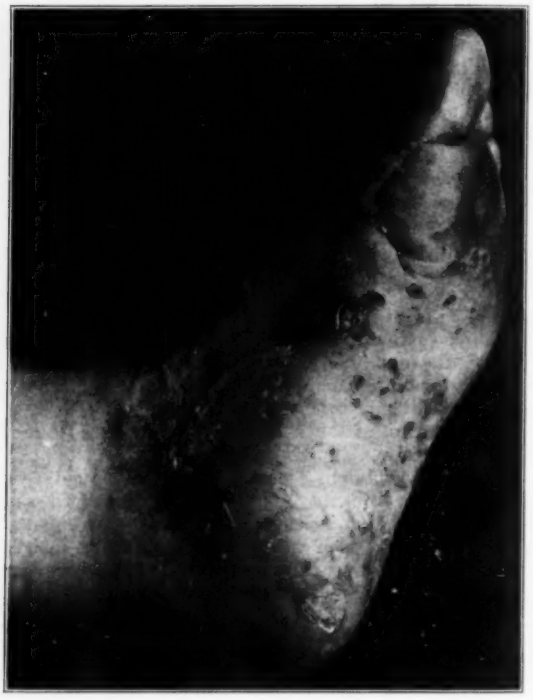

Fig. 1.—Tuberculo-squamous syphilid of twelve years' duration.

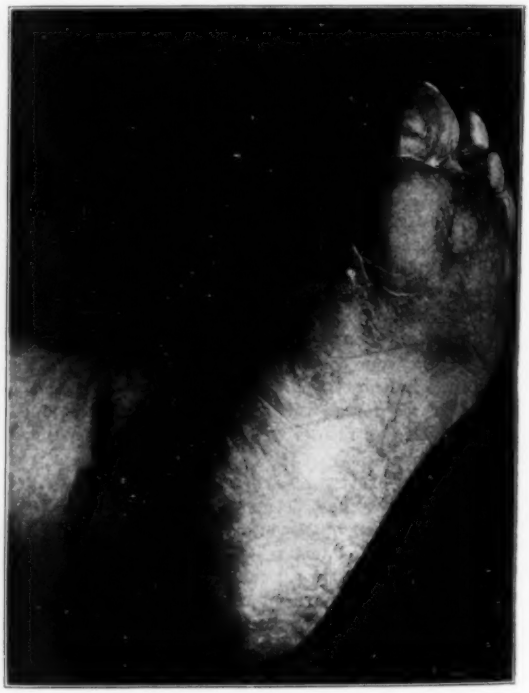

Fig. 2.—Same as Fig. 1, one month after one intramuscular injection.

those associated with gummatous lesions and especially with periostitis, also yielded very satisfactorily.

One patient suffering from incipient tabes was treated without any benefit. In one case of hereditary syphilis the result was excellent, in another moderately good. In a case of leukoplakia of the mouth no improvement was obtained. In a case of extensive leukoplakia of the tongue, there was a temporary lessening in the thickness of the patches, without any diminution in their extent.

The all-important question of the permanence of the action of salvarsan can hardly be fairly discussed until a period of several years at least has elapsed. It must be said, however, that the number of relapses in our cases has been somewhat less than would have been expected as a result of our earlier experience. One of our patients relapsed repeatedly after four different injections, comprising all of the four methods of admin-

most of these cases at least would have yielded in a satisfactory manner to mercury if its administration had been sufficiently vigorous and thorough. An example of the very rare cases in which mercury cannot be tolerated in any form was shown by a case (83) of extensive gummatous ulceration of the palate. For eighteen months an experienced syphilologist had attempted to treat this patient by injections, inunctions and internal administration of mercury. Small doses had proved of no avail and large doses had been followed by necrosis of portions of the gums. We spoke of this case in our first communication[1] as one in which a "disappointing relapse" had occurred; we now report that the ulcerations healed entirely after a second injection and that no further relapse had occurred at the end of seven months.

1. Fox and Trimble: THE JOURNAL A. M. A., March 4, 1911, p. 650.

The Wassermann test was made in every case before treatment and subsequently as often as circumstances permitted. More than 400 examinations were made in the course of eight months. The original Wassermann method was followed, using as antigen a reliable alcoholic extract of syphilitic liver.

The results of the Wassermann reaction may be conveniently considered in two groups, those of patients who received one and those of patients who received two or more injections. Of the patients who were treated by a single injection, seventy-one showed a positive Wassermann reaction before treatment. Of these cases, twenty-eight became negative at an average period of about six weeks. In these the reaction later became positive in two, weakly positive in three cases and faintly positive in one case. The twenty-two cases which remained negative (30 per cent.) were followed, on an average, two and a half months; some of them for six and eight months. Of the remaining forty-three cases, ten showed a temporary and twenty a final weakening in the reaction.

Fig. 3.—Gummatous ulceration of six months' duration.

In eleven cases the reaction remained the same. In two cases it became stronger.

Of the cases in which two or more injections were given, twenty were positive before treatment. Of these four became negative in periods varying from five to nine weeks. One of these later again became positive. Of the remaining fifteen cases five showed a temporary and eight a final weakening in the reaction, while eight remained the same. The total number of cases which remained negative after either single or multiple injections was twenty-five (27 per cent.).

In all except five of the cases ophthalmoscopic examination of the fundus was made, although we have for some time considered that such an examination was an unnecessary precaution. Routine examinations of the urine were made before and after injection and showed a transitory albuminuria in a few cases.

At the beginning of our experiments every patient was required to remain in bed for three days after treatment. More recently the patients receiving intramuscular injections of oily suspension have been allowed to go home after treatment and advised to keep as quiet as possible for several days. Patients receiving intravenous injections have been required to remain in bed only for twelve, or in some cases four or five hours.

There have fortunately been no serious ill effects from salvarsan up to the time of writing. Deafness appeared in one case three months after treatment, but was found on aural examination to be due to acute catarrhal otitis media. The patient presented a chronic rhinitis and pharyngitis and had also suffered from a discharge from the opposite ear before the administration of salvarsan. Another patient (68) who had complained of smarting of the eyes and blurring of vision, showed no abnormal changes in the fundus on ophthalmoscopic examination.

Among the general effects of salvarsan should be mentioned a marked improvement in general health that was

Fig. 4.—The lesions shown in Figure 3, view ten days after one intramuscular injection.

noted in quite a number of cases. Seventeen of our patients showed a decided gain in weight, one of them gaining 23 pounds in the course of seven months. In three cases, however, there was a loss of from 15 to 18 pounds, which had not been regained in two of the cases at the end of three months.

After subcutaneous and intramuscular (Lesser) injections the temperature rose as a rule on the second day and lasted from one to three days. In five cases there was no reaction whatever, while in the others the height of the temperature ranged from 99 to 102.6. After intravenous injections the temperature rose as a rule within a few hours, its height varying from 99 to 103 degrees.

No temperatures were taken after most of the oily injections, the patients being allowed to go home immediately after the treatment.

Among the general symptoms noted after intravenous injections were chills or chilly sensations in twenty-seven cases, vomiting in twenty-five, headaches in fourteen cases. One patient complained of dizziness, another of diarrhea for a day, and two suffered from sleeplessness for several days. In twenty-eight cases there were no symptoms whatever. Two patients who had shown a marked reaction after the first injection showed no symptoms after the second had been given.

The local effects of intramuscular injections of alkaline suspensions included pain, induration and lameness, which were very severe in nine cases, moderate in five and slight in five cases. The discomfort in some of the cases was severe enough to warrant the use of morphin. After intramuscular injections of oily suspensions the local effects were severe in ten, moderate in eleven and slight in eight cases. In the worst cases the patients were obliged to remain in bed for a week or more, and even at the end of several months they complained of some stiffness about the buttocks and thighs. Necrosis occurred in two cases (3 and 4) after subcutaneous injections, in one case (10) after the intramuscular injection of an alkaline solution, and in two cases (70 and 88) after intramuscular injections of oily suspensions. At the time of writing nine of the ten patients that had been treated by the subcutaneous method still presented the characteristic indurations between the scapulæ; the tenth case had been early lost to observation.

Among the interesting by-effects that were observed may be mentioned a case (85) in which a herpes zoster appeared on the trunk ten days after the injection. A general toxic erythema occurred in two cases (41 and 68) on the seventh and ninth days respectively after treatment, lasting three days and accompanied by febrile symptoms. In one case the temperature rose on the first day to 104.

Treatment with salvarsan had no disturbing effect on pregnancy in one of our cases (21) which was followed from the sixth month to full term, and in another case which could only be followed for a month.

Disturbances in menstruation were noted in twelve cases after treatment. In two of the cases the irregularities were possibly due to the menopause. In another case the cessation of the flow was probably due to pregnancy. In one case the menstrual periods became more regular, while in the others they became more irregular after injection, being delayed in one case for seven and a half months.

One patient with nodular leprosy was experimentally treated with an intramuscular injection. In our first report we stated that this patient had been prostrated by the treatment and that no benefit had resulted from the injection. A change occurred, however, a month later when numerous ulcerating lesions of the face healed entirely. Two weeks later there was a partial relapse. No change in the solid nodular lesions was noted. A small dose of salvarsan was later given intravenously without producing any improvement or indeed any reaction whatsoever.

Two patients (17 and 90) who were treated for syphilis also presented complicating lesions of psoriasis. In one case the eruption was practically well at the end of three and a half months. In the other case, in which (according to the patient's statement) the eruption had existed for forty years, there was a complete disappearance of the psoriatic patches at the end of six weeks and at the end of three months no relapse had occurred.

In giving intravenous injections we have employed the gravity method in all of our cases except the first, in which the more complicated Schreiber apparatus was tried. We have had practically no difficulty and no bad results. For most of the injections we have used our own model of the gravity apparatus described elsewhere.[2] In this communication we recommended the Schreiber form of needle having a 17 or 18 bore and a bevel that was not too long. Our experience with some of the short beveled and dull needles has led us to modify our views. We are now convinced that the most suitable needle is of the Schreiber type, having an 18 bore (Stubbs) and a bevel of about 3 or 4 mm., that is, not too sharp and not too dull. For diluting the salvarsan we use only sterile distilled water and dispense entirely with the salt solution. This may be the cause of the appearance of small nodules in the vein in eight out of sixty-nine injections. In two cases they were present at the last time of observation, the fourth and tenth weeks respectively after treatment. In the others they had disappeared in from one to four weeks. The simplicity of using water instead of salt solution is an advantage that in our opinion more than compensates for the appearance of some of these harmless nodules.

CONCLUSIONS

1. Salvarsan is a powerful symptomatic remedy for the treatment of syphilis.

2. It acts with greatest rapidity on lesions of the mucous membranes.

3. It is of decided value in obstinate palmar and plantar syphilids.

4. The permanence of its action cannot be determined until a number of years have elapsed.

5. Salvarsan should be used in conjunction with mercury and cannot entirely replace this valuable remedy, except in a few selected cases.

6. The effect of salvarsan on the Wassermann reaction is less favorable than on the clinical manifestations of syphilis.

7. Its effect on the Wassermann reaction is in general analogous to that of mercury.

8. The intramuscular and intravenous methods of administration are probably of equal efficiency.

9. The intravenous method is the one of choice where rapidity of action and the comfort of the patient are factors to be considered.

For the greater part of the material we are indebted to Dr. George Henry Fox. We also wish to express our thanks to Dr. Robert G. Reese for the ophthalmoscopic examinations and to Dr. George T. Jackson and Dr. John A. Fordyce, from whose clinics a few of the cases were obtained.

616 Madison Avenue—39 East Twenty-Eighth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HIRSCHFELDER, FOX AND TRIMBLE, AND MATSON AND REASONER

DR. D. W. MONTGOMERY, San Francisco: The interesting statement made by Dr. Hirschfelder in regard to the toxic effect of salvarsan being in many cases due to decomposition after intramuscular or subcutaneous injections, is very important, and constitutes a weighty reason for giving it intravenously. We do not know what these decompositions are, but we do know that there is an enormous amount of arsenic put under the skin or into the muscles, and we also know that any decomposition would likely work detrimentally to the patient.

The statement, however, in regard to cephalic chancre being particularly apt to be followed by syphilis of the brain, I am

2. Fox and Trimble: Med. Rec., March 18, 1911, lxxix, p. 469.

not inclined to accept. I do not believe that chancres in this region are any more likely to be followed by syphilis of the brain than infection in other regions. Another interesting statement was made in regard to the milk of syphilitic mothers suckling syphilitic infants being curative of the syphilis in the infant. That is true. Why it is so is hard to tell. It is doubtful if the small amount of arsenic found in the maternal milk is enough to account for it. In testing for arsenic one must always bear in mind that it can be found anywhere. I suppose there is not a suit of clothes in this room that does not contain it. So that the mere finding of arsenic in the milk, except in large quantity, would not account for the curative action of salvarsan in the infant. I saw an infant in Frankfort a short time ago under Theodore Sachs. It was getting well without receiving any arsenic or salvarsan, or any other drug directly, but simply from suckling a mother who had received a gluteal injection of salvarsan. I have no personal experience with salvarsan in anything else than syphilis, and I have never seen it given in anything else excepting in a few cases of leprosy. One of these lepers I understand did excellently. Dr. Fox, I think, is correct in saying that the macular and papular syphilids do not disappear with very astonishing rapidity. Such eruptions do disappear rapidly with mercury and I do not know that they fade away any more rapidly with salvarsan. But gummata, when the patient is treated with salvarsan, often disappear with remarkable rapidity. The late palmar and plantar syphilids are particularly amenable to treatment with salvarsan, and it is a matter for congratulation that they do, as under the old modes of treatment they were among the most intractable eruptions, and we often had to resort to intense treatment, such as calomel injections. That salvarsan does favorably influence the late palmar and plantar syphilids is just what one might expect, as arsenic is strongly epitheliotropic. The same can be said of leukoplakia, and it is very interesting that Dr. Fox found that it reduced the thickening in this intractable disease.

DR. H. R. OLLIVER, San Francisco: Some cases of optic atrophy which have shown deleterious effects from a first injection of salvarsan, improve and the patients often recover under a second injection. The first injection causes a round-cell infiltration, whereas the second injection causes reabsorption and the case is bettered. In regard to nephritis after the injection of salvarsan, I have seen a large number of cases in which there were casts and albumin occurring after the injection, but in those cases the casts invariably were waxy, casts which it would be impossible for the salvarsan to have caused. The lapse of one or two days after an injection is not sufficient to permit the formation of waxy casts in the urine. In the other cases in which there was transitory albuminuria there were no casts present. The crises in parasyphilitic cases are acted on remarkably. I have seen patients in agony, who in twenty-four hours were entirely relieved of their pain. It is well known that all infants that are born syphilitic should suckle a mother who has been injected with salvarsan or a syphilitic wet-nurse who has been treated. In addition to this it is well to use about 0.015 of salvarsan every eight days as an intravenous injection in these cases, because if we use larger doses it may liberate so many spirochetes from the internal organs of these infants (which literally teem with these organisms) as to cause an overwhelming of the economy and deleterious results. In leprosy the cases which have been improved by the salvarsan have invariably shown a positive Wassermann reaction. In primary syphilis I have never been so fortunate as to get a Wassermann reaction before the tenth to the sixteenth day after the initial lesion. I cannot really conceive how we would get it until we get a systemic infection; that is, we would not have enough antibodies formed in so short a time as to be able to get a Wassermann reaction. I have seen one case of malignant syphilis in which I have done three or four Wassermann reactions with negative results. The patient became very emaciated, was then given salvarsan and in six days his blood gave a triple plus Wassermann reaction and he has rapidly improved. The time of the disappearance of the reaction after the administration of salvarsan corresponds quite directly to the strength of the Wassermann reaction before the salvarsan is given. That is, if the patient has a triple plus Wassermann, as we understand it, before the injection, it takes that patient from two to three months to become negative. The patient with double plus before the injection takes one or two months. When he has single plus or partial Wassermann, it takes about one month to become negative. The reaction is reverse to that of mercury. With the mercurial treatment we may have a negative reaction caused by mercury without the patient being well, and if we take him off of mercury he gradually increases his reaction until it becomes thoroughly positive again, whereas with salvarsan it may become positive, and gradually comes down until it becomes negative.

DR. M. H. FUSSELL, Philadelphia: To the ordinary everyday clinician the administration of so large an amount of liquid into a vein is rather a terrible affair, but it must be, and in my own experience has been, practically without any danger. Yet there are dangers in these intravenous injections. I think Dr. Hirschfelder spoke of two to which I wish to call particular attention. It is true that these accidents ought not to occur. That they do occur I think proves that we should be extremely careful either in perfecting our own technic, if we ourselves administer the salvarsan intravenously, or that we should have an expert to do it for us. The latter plan I always follow. However, I have seen both of the accidents occur that Dr. Hirschfelder spoke of—one the induration about the point of injection into the vein. In this particular instance there was not only an induration about the vein but there was a distinct and marked phlebitis of the entire vein; the man's arm was swollen to twice or three times its normal size and for three or four weeks he was extremely ill. That was an accident which should not occur, but it did occur as a direct result of the injection. If it had been given by an expert I presume it would not have occurred. Another one, a frightful affair, is the hemiplegia or sudden death after injection. There is one case in Philadelphia, which did not occur in my own work, in which a man had a sudden collapse, a hemiplegia and finally a recovery. It seems to me some blood must have been in the tube before the injection of salvarsan was begun. This can easily be prevented by allowing the solution to flow through the tube at the time it is injected into the vein. I saw such an accident occur in the hands of a resident of mine after an ordinary phlebotomy. I had told him to give an intravenous saline solution. He bled the man with the tube through which he was to inject the saline solution. The man was bleeding at the time he attached his tube, and instantly the man was dead. I presume he had a cerebral thrombosis. That these things can occur is certain and we should remember that it is no light job to put numbers of centimeters of liquids into a vein. I want to call attention to the apparatus Dr. MacKinney of Philadelphia uses for the purpose. His tube is in a sort of vacuum bottle and it retains the heat very well. I would like to ask Dr. Fox if he has any explanation for the disappearance of the psoriasis and if he has used salvarsan in psoriasis alone.

DR. L. DUNCAN BULKLEY, New York: I have watched many cases in my service in the New York Skin and Cancer Hospital with a great deal of interest, and photographs have confirmed the remarkable results in some cases which I have not observed personally. Really it is a wonderful remedy, but the point is whether for practicing physicians this is going to take the place of our ordinary treatment, what its true value is in relation to other proper therapeutics. I endorse what has been said concerning the Wassermann test. The Wassermann test should be used wherever possible; in doubtful cases it is certainly invaluable as an index to treatment. I think it might well be made a legal requirement before marriage. It would be of immense value in stamping out the disease if every patient who has had syphilis were required to have his cure demonstrated by the repeated application of the Wassermann test.

I have heard a great many other discussions on salvarsan in various scientific societies, with the exhibition of many dozens of cases in process of cure, and have seen bad results from subcutaneous and muscular injections. I have seen one

case of terrific phlebitis from an intravenous injection, which required a surgical operation for removal of the vein. The patient was not under my care at the time but came to me afterward. Almost all who write or speak say, evidently with good reason, that some mercurial treatment must follow the use of salvarsan. I have not accepted the salvarsan treatment as the best in private practice, but I am waiting to know further results. As yet, with proper other treatment, I do not see the need of salvarsan in private cases. I have used it in hospital practice and get surprising results, but I do not advise my young men to rush into it. It may be peculiarly serviceable in certain cases in future, but I doubt if it will ever largely supplant other accepted treatment. It should be used by an expert. There is also a grave danger in regard to the salvarsan treatment, lest patients think that they have been cured of syphilis by one or two injections and then neglect treatment and have relapses of a serious nature. The quacks have taken it up and are charging large amounts for injections of something called salvarsan. The victims have it administered and then go away and think they are cured. If they get the real article from a regular physician there is still danger of relapses or, rather, later manifestations of the disease.

DR. W. P. MURRAY, Caliente, Nev.: It seems that there is quite a scare in the minds of many lest something foreign get into the veins during the administration of salvarsan. As to the blood regurgitating back into the tube, I believe the point is well taken by the speaker who preceded me. Many physicians have a fear of allowing a few bubbles of air to gain access to the system. I have seen as much as 1 to 3 c.c. of atmospheric air gain access to the venous system without causing ill effect. Never in my practice have I seen ill effect from a few bubbles of air in the administration of any solution whatever. Again, in reference to the normal salt solution, I find that the only use we can make of it is to ascertain whether we have the needle in the vein or not. I suppose some better physicians than I still resort to cutting the vein and inserting the needle and then allowing the salvarsan to flow into the vein. I have found it entirely unnecessary, as, by having the patient clench the fist so that the veins stand out, it is a very simple matter to pick up the vein. The only use of normal salt solution is to tell whether or not we are in the vein. When we have a sharp needle and insert it obliquely and release the flow from the normal salt solution, and it begins to balloon up the solution is not entering the vein, but if it flows along and there is no ballooning or swelling it is in the vein. To do that is sometimes a difficult matter. In the administration of salvarsan I have yet the first time to see the fluid escape extravenously without producing a slough. I have known it to occur after the most careful aseptic precautions. In reference to the intramuscular administration, I have my first case yet to see in which it did not produce inflammation and sloughing. Never, when proper precaution is taken as to asepsis, have I seen a slough after the intravenous method.

DR. J. O. HIRSCHFELDER, San Francisco: In reply to Dr. Montgomery's criticism of the presumed presence of arsenic in the milk and the claim that he makes that arsenic is found everywhere, I would say that the Homeopathic Association might consider such presence, but I doubt whether one will be able to find arsenic in milk in demonstrable quantities, provided one uses arsenic-free tests in the examination, unless one uses enormous quantities of milk—probably 2 or 3 liters. I cannot speak from knowledge that these large quantities would show even traces of arsenic. In quantities like 100 c.c. I do not think that arsenic has ever been found in normal milk. In the human milk of syphilitic individuals who have received salvarsan the arsenic has been found in very appreciable quantities, so that in making the test the presence of arsenic was very plain indeed; likewise with goats which had received a small quantity of salvarsan. Then we are not to forget in speaking of the milk of syphilitics who have received salvarsan, that it contains large quantities of endotoxins, as well as antibodies that have been set free. The fact that, in the experience of some, syphilitic infants that have been treated with this milk have become violently ill is probably due to the immense quantity of endotoxins that are set free and cannot be formed into antibodies in the body of the infant. Consequently, I think that we should not forget the advice that was given to administer salvarsan to cows and goats and to feed the infants with the milk derived from these animals. I want to thank Dr. Fussell for the suggestion that he has made in regard to the coagulation of the blood in the tube inserted into the vein and the possible production of emboli by coaguli. I am sure that can occur. If the simple precaution is taken to allow the blood to flow freely through the tube before the salvarsan is introduced I think there will be no difficulty. I have had no trouble in making the salvarsan injections. In answer to Dr. Murray, as well, I would state that in very fat people it is sometimes impossible to find the vein at the elbow no matter how thoroughly you may apply your tourniquet, without laying bare the vein by a little incision, but in those cases I have always taken the vein at the wrist where it always stands out prominently. There is rarely sufficient accumulation of fat at this point to interfere with the finding of the vein and the introduction of the needle. In answer to Dr. Fussell, if 300 c.c. are allowed to flow into the tube in fifteen minutes that would be 0.33 c.c. per second. This quantity is rapidly disposed of by the circulating blood. In order to be cautious, I have my mixture heated to 110 F., but I think I do it out of respect to the figure rather than as the result of experience of any ill effects from using the solution at a lower temperature.

DR. HOWARD FOX, New York: The fluctuations in the Wassermann reaction occurring after injections of salvarsan cannot, I think, be ascribed to faulty technic. Such changes are shown in a marked degree in a table published by Zieler. They were also noted in some of our own cases, the reaction changing from positive to negative, or vice versa, within a week. They are certainly not seen with such frequency after mercurial treatment.

Dr. Matson spoke of the intravenous injections as being more efficient than the intramuscular injections of salvarsan. While the intravenous method is undoubtedly quicker, we are not prepared to say that its action is more efficient than the intramuscular method. This is a question of greatest importance, as it is plainly impossible to administer salvarsan in every case by the intravenous method. The drug cannot fulfil its greatest usefulness, unless it can be given in office and dispensary practice, just as injections of salicylate of mercury are given.

In reply to Dr. Fussell, I would say there are three signs by which infiltration of the tissues can be avoided, when giving intravenous injections. The most important of these is pain at the point of injection, the patient being instructed to tell the moment he feels a sharp, stinging pain at the point of the insertion of the needle. It is therefore apparent why salvarsan should never be administered intravenously under a general anesthetic. In the second place, the nurse or assistant should see that the fluid is running steadily from the glass container, and finally, the operator should watch for the presence of swelling at the insertion of the needle. This is not as important as the other signs, because the infiltration may take place behind the needle and not be visible at once to the operator. It may be said that a very small amount of infiltration in the cellular tissue will do no harm.

In answer to Dr. Fussell's question about psoriasis I would say that I have treated only two cases, the psoriatic lesions in these cases being incidentally present. The action on psoriasis is probably due to the arsenic, which has a stimulating effect on the epithelial layers of the skin.

I agree with Dr. Bulkley, who warns against our depending entirely on salvarsan. It should merely be considered as one of our means of combating a very serious disease and should be used in combination with the older well-known remedies. I also think that Dr. Murray is right regarding the bogey of getting air bubbles into the vein. I have seen small air bubbles enter the vein without producing the slightest ill effects.

DR. RAY W. MATSON, Portland, Ore.: I believe for the initial cases that the intravenous method of administration

would accomplish more nearly than any other the so-called *therapia sterilisans magna* of Ehrlich, since the salvarsan is taken up by the vascular system and permeates the whole body in the course of a few seconds or minutes. There is a possibility of destroying all of the spirochetes contained in the body in a very short period of time. For subsequent injections I think the intramuscular is theoretically better because the drug is absorbed and eliminated very slowly. In this way it exerts a continuous action. First, we have what might be termed the fatal blow, followed by the continuous action of the chemical. As to our method of giving salvarsan, of course it must be remembered that our patients have been in excellent shape to begin with, men in the prime of life. I have had absolutely no difficulty in regard to reaction. One patient with myocarditis complained of excruciating pain while the injection was being given, and it was so severe that I had to discontinue the method after giving the third injection. Captain Pearson of the Army Medical Corps devised the scheme of applying the tourniquet and distending the veins after freezing the vein with carbon dioxid. The introduction of the needle is very much easier because the vein is fixed absolutely to the skin. Regarding the length of time required for converting a negative to a positive reaction following the administration of salvarsan, I cannot agree with Dr. Oliver in every respect. I have seen the strongest positive Wassermann converted to a negative one in the space of three weeks following the administration of salvarsan. In one case of latent syphilis of twenty years' duration in which the patient complained of severe headache of one and one-half years' duration, he was relieved in two weeks and his Wassermann became negative at the end of three weeks following the intramuscular administration of 0.6 gm. of salvarsan.

A NEW ESOPHAGOSCOPE

A PRELIMINARY COMMUNICATION

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NEW YORK

The principle on which all esophagoscopes have been constructed up to the present time has been seriously defective, as no attempt has been made to adapt the instrument to the anatomic conditions in the upper part of the alimentary tract. In the normal position, the oral cavity joins the upper esophagus at a right angle, and the only method hitherto in vogue to overcome this rectangular junction has been to extend the head forcibly and thus to approximate a straight line from the teeth to the cardia. This feature applies both to the simple straight tube and to the jointed instrument, and is the explanation of the unpopularity of esophagoscopy.

I have constructed an instrument intended to overcome this objection. As the accompanying illustrations show, my instrument is built on a rectangular plan similar to the gastroscope models of Poirier and Eckstein, although it differs from these in one essential particular. Their esophagus tube was a jointed one, while mine is a telescope formed by six small tubes which fit into one another. Each tube is 5 cm. long, and the diameter varies from 9 to 14 mm. The image is transferred at the rectangular junction by a mirror, while another perforated mirror in the eye-piece is used for the purposes of light reflection (Fig. 1).

It is beyond the scope of this preliminary report to give a detailed description of the minute mechanism of the instrument. I would like to emphasize, however, that the construction is such that the entire instrument can be taken apart for the purposes of thorough cleansing.

The instrument is introduced with the telescope closed (Fig. 2). Then, by means of a spring, under the guidance of the eye (Fig. 1), the telescopic tubes are separated and thus pushed down into the esophagus. As no pressure is made on the tubes until they lie in the axis of the esophagus, the danger of injuring the posterior wall of the organ, which is ever present in all the other models, is entirely obviated.

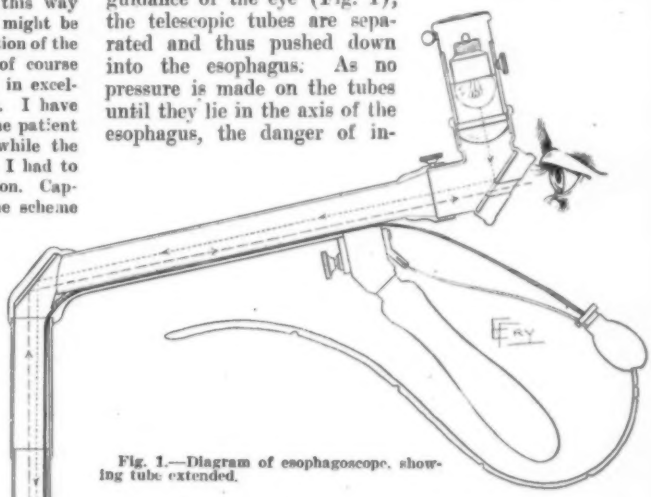

Fig. 1.—Diagram of esophagoscope, showing tube extended.

I have applied the same principle of a rectangular telescope to the construction of a gastroscopic instrument, by simply adding another tube and inserting a cystoscopic optical and illuminating system. For the time being, however, I have confined my practical tests to the esophagoscope.

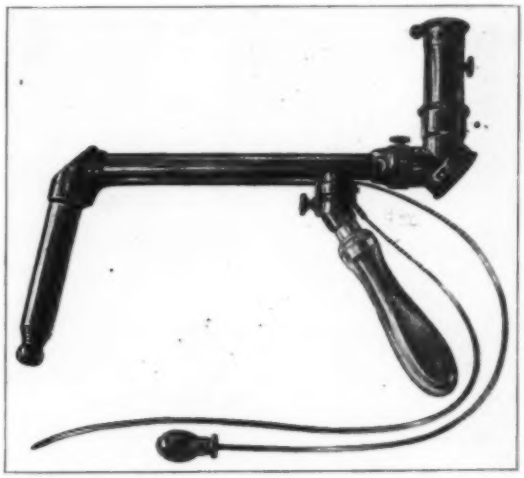

Fig. 2.—General view of esophagoscope with telescoping tube closed.

I have tried the esophagoscope in a considerable number of cases. After some experience with the instrument, the introduction should be easily learned. The instrument is inserted with the patient in an upright sitting posture. Cocainization of the pharynx is advisable, but I have already introduced the instrument without even local anesthesia. The introduction

is well tolerated. I have not yet had sufficient opportunities in pathologic cases to show conclusive results as to the merits of the instrument, but it appears to me that this new principle is a decided advance in this field of work and offers a promising future.

1 West Eighty-Fifth Street.

A NEW METHOD IN OPERATING FOR ECTROPION

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NEW YORK

The object of the present paper is to present a new principle in operating for ectropion, which is applicable, either singly or in conjunction with other methods, in all forms of atonic ectropion, and in all cases of cicatricial ectropion in which the tarsus itself is not destroyed.

I say a new principle: it is new so far as I have been able to find out by consulting the literature at my command and by talking with my confrères. However, when we consider that Antillus devised an operation for this deformity fifteen centuries ago, and that operations and modifications innumerable have been practiced since then, it would be small wonder if this principle had not been hit on before.

The principle consists in shortening the tarsus at the temporal extremity, and then *attaching this extremity to the periosteum* of the temporal border of the orbit, on a level slightly above the lid commissure if the lower lid is affected, and below the commissure if the upper lid is in fault. The operation is performed as follows:

ATONIC ECTROPION

1. A canthotomy is performed extending to and slightly beyond the orbital margin, exposing the periosteum.

2. The edge of the lid including the cilia is pared off to a slightly greater extent than the piece of tarsus to be removed.

3. The skin and orbicular muscle are separated from the external canthal ligament and the outer end of the tarsus.

4. A triangular piece of the tarsus, more or less extensive according to the extent of the ectropion and lengthening of the lid border, is excised. In case of redundancy of the skin, a triangular piece of skin equal to that of the removed tarsus is removed.

5. A No. 6 silk suture is placed through the outer extremity of the shortened tarsus near the margin, the needle being passed from without inward; then the needle is carried through the periosteum of the rim of the orbit (slightly above the commissure if the lower lid is being operated on, and slightly below if the upper lid is being corrected); the needle is brought out and continued through the skin from the under surface outward. The suture is tied in a single knot. If enough tarsus has not been removed to correct the deformity, the suture is loosened, a little more of the tarsus excised, and the anchoring suture reapplied as before.

The skin wound is closed with fine silk sutures. A dry gauze dressing is put on and a bandage applied. The skin sutures should be removed on the third or fourth day, while the anchoring suture, which can be reached on the skin surface, where it is brought out on purpose, should not be removed until the seventh day.

Fig. 1.—This and the following five figures show the author's operation for ectropion. Canthotomy, the first step.

Fig. 2.—Tarsorrhaphy.

Fig. 3.—Triangular piece of tarsus removed.

Fig. 4.—Triangular piece of skin removed.

Fig. 5.—Insertion of anchoring suture.

Fig. 6.—Completed operation.

In cases of excessive atonic ectropion and in many cases of cicatrical ectropion, instead of a piece of skin being cut from the lid itself, a triangular piece may be removed beyond the external canthus, as in the Dieffenbach-Szymanowski operation. Then the undermined skin from the lid is slid over and sewed in position, just as in that operation. It supports the cartilage which has been anchored to the periosteum, and the combined operation is very effective and is advised in marked cases of ectropion.

CICATRICIAL ECTROPION

This principle of anchoring the tarsus to the periosteum applies in many cases of cicatricial ectropion; in fact in most of the cases in which the tarsus itself has not been destroyed. Even when the skin must be replaced by a flap or a skin graft, if the tarsus is first freed and the outer extremity anchored to the periosteum of the rim of the orbit, the result, as a rule, is satisfactory. The first case in which I used this method was one of very extensive cicatricial ectropion; one that had

had six operations, and which I report, as the result was most satisfactory and has remained so for fifteen months.

History.—Helen C., aged 17, in good general health, fell on a stove when 9 months of age and burned the left side of face and forehead, which caused marked cicatricial ectropion of the upper and lower lids.

Examination.—There was mechanical ptosis of the upper lid, due to a thick and broad pedicle flap from the forehead, with slight entropion of this thick lid at the outer extremity; complete ectropion of the lower lid, scar tissue binding the lid to the periosteum. There was extensive scar tissue extending an inch from the external canthus, up and down and toward the temple. The eye diverged 20 degrees and there was constant epiphora.

Operation and Results.—Dec. 1, 1909, under ether anesthesia, I operated as follows: Beginning at the external canthus an incision was made outward and slightly upward beyond the rim of the orbit, exposing the periosteum. A second incision, double the length of the first, extending directly downward from the external canthus was next made, and the ends of these two incisions joined by a third, as in the Szymanowski method. This triangular piece of scar tissue was excised. The outer edge of the lid, including the cilia, was pared to the extent of about one-fourth inch. Next, the skin and muscle were undermined, separating them from the periosteum far down on the cheek and from the tarsus up to its free border, but not from the free border. Incidentally the tarsus itself was freed from the periosteum of the cheek. A triangular piece of the tarsus, one-fifth inch long on the free border, was excised, a No. 6 silk suture was placed as described in step 5. On the fourth day the skin sutures were removed and on the seventh the deep anchoring suture. The result, to tell the truth, was much better than expected. The ectropion was completely relieved and has remained so to date, and there is no epiphora at all.

A few weeks afterward, I removed a strip from the upper lid, relieving the ptosis almost entirely, and a little later I performed an advancement on the left internal rectus muscle with tenotomy of the left external rectus, getting a perfect cosmetic result. Though the patient has not single binocular vision, the amblyopia being very pronounced in the left eye.

In the few cases of atonic ectropion in which I have tried this operation in its simplest form, that is, by removing a small piece of tarsus and anchoring the outer extremity to the periosteum, removing no skin and only a few cilia, the result has proved entirely satisfactory in every case.

50 West Thirty-Seventh Street.

THE ETIOLOGY OF PELLAGRA

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FORT WORTH, TEX.

The rapid increase in pellagra in some sections of our country should give rise to a conservative alarm, and any suggestions as to a possible etiologic factor should be made public, for not until the etiologic factor, or its method of transmission, is discovered, can any rational steps be taken toward the prevention of the disease. That there is great reason for a conservative alarm is apparent when we consider these facts: that the number of cases is increasing rapidly; that people in all walks of life are affected; that absolutely nothing is known as to how the disease is acquired, and that no certain hope can be offered to its victims.

Because of our absolute lack of knowledge of how pellagra is acquired, and taking into consideration the rapidity of its increase, it appears to me a greater menace to a certain section of this country than syphilis or tuberculosis. We know what pellagra did in Italy; we know, but few realize, what it is doing in the affected area, but no one knows but that in this country it may have found an even riper field than it found in Italy. We do know that the field is ripe.

Sambon has advanced the theory that pellagra is transmitted by the buffalo gnat (genus *Simulium*), and asserts that it occurs especially among people who live near running streams. Roberts[1] has applied this theory to Georgia and from evidence which he has accumulated has concluded that Sambon may be correct, and states that Georgia and Italy are similar in regard to conditions which Sambon believes predispose to pellagra. I have procured evidence on this point in fifty-four cases occurring in Texas, and find that of the patients but four lived near a stream or less than one-fourth mile, nine lived from one-fourth to one-half mile, while forty-one lived at least one mile; two lived eight miles, four ten miles, one twelve miles, one fifty miles and one sixty miles from any over-ground collection of water; a general average of over four miles.

Texas has country which it does not take a vivid imagination to compare with the green valleys of Georgia or Italy, but there are also regions where a running stream does not exist for miles, and in these places pellagra is prevalent. In spite of a drought for the last three years, during which there were few running streams in Texas except a few of the large rivers, pellagra has increased markedly.

In an investigation of the pellagra situation lately made for the State Board of Health of Texas, an inquiry as to the sex of the patients has led to some startling findings. Females are either more susceptible to the disease or, when attacked, are less resistant to its ravages; or else they are more exposed to the causative agent than are males; for out of 189 deaths reported to the state health officer, 153 were of females and only thirty-six were of males. I cannot believe that they are more susceptible, for this would be contrary to medical experience; nor can I, for a like reason, believe them less resistant. I am therefore forced to the belief that they are more exposed. Another interesting fact is this: of the thirty-six males there were only seven between the ages of 20 and 50; in other words, only seven of the age at which the time spent in the home is the least.

These two observations have led me *near* to a conviction that the etiologic factor of pellagra is some thing or condition which exists in the home or "around the house," for in no other way can I explain the greater number of cases in females and in those males who, because of their age, spend most of the time at home. In Italy, where the women share to a greater extent the labor of the fields, the number of cases in females, while still greater than in males, by no means shows such preponderance as exists here. I am going to suggest, however, with great trepidation, that the agent may be active in the daytime only, for were it not so, those who spend little of the day at home, but most of the night, would not show such immunity as seems to exist.

My desire in making this publication is to bring out further statistics on this point, and if further statistics show that in this country there is such a constant disparity between the number of cases in males and females, and that there is a comparative immunity among males during the time of life in which the time spent in the home is the least, the reason for these facts must be explained, and with this explanation will come the solution of what students of the disease must agree is yet a riddle, the question of the cause of pellagra.

109 East Seventh Street.

1. THE JOURNAL A. M. A., June 10, 1911, p. 1713.

PELLAGROUS SYMPTOMS PRODUCED EXPERIMENTALLY IN FOWLS BY FEEDING MAIZE SPOILED BY INOCULATION WITH A SPECIFIC BACTERIUM

PRELIMINARY NOTE *

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For nearly three years I have been collecting cultures of bacteria from sources supposed to be in some way or another connected with pellagra. The chief sources have been the stools of pellagra patients and corn-meal or bread supposed to have been the food of pellagra patients at the time of their intoxication. Nine of these cultures thought to be the most promising were selected for the following experiment. All of these cultures were isolated by plating the suspected material on media containing only corn-meal, water and sufficient purified agar to make solid media.

Corn, too green to shell, was "shucked" and dried in the sun until it could be shelled. After shelling, the grain was again dried in the sun until it could be ground into meal with a hand grist mill. It was ground and the meal at once put into large bottles, moistened with water and sterilized in the autoclave. That the sterilization was complete is shown by the fact that a bottle of this meal has remained sweet and sterile for over three months. Bottles of this sterile meal were inoculated with each of the nine pure cultures referred to, incubated at 37 C. for three days and the feeding was then begun. Chickens, 2½ to 3½ months old, were selected. The spoiled meal was stirred into water, strained through coarse gauze and this fluid containing considerable fine meal was fed through a tube once a day. The dose given was the extract of about 10 to 20 gm. of meal a day. These chickens were given as much unpolished rice as they would eat all the time for thirty-eight days, after which their diet was changed to a good quality of cracked corn.

One fowl, No. 5a, fed on meal spoiled with Culture 5, has developed a condition very closely resembling pellagra in man. None of the others has developed such symptoms.

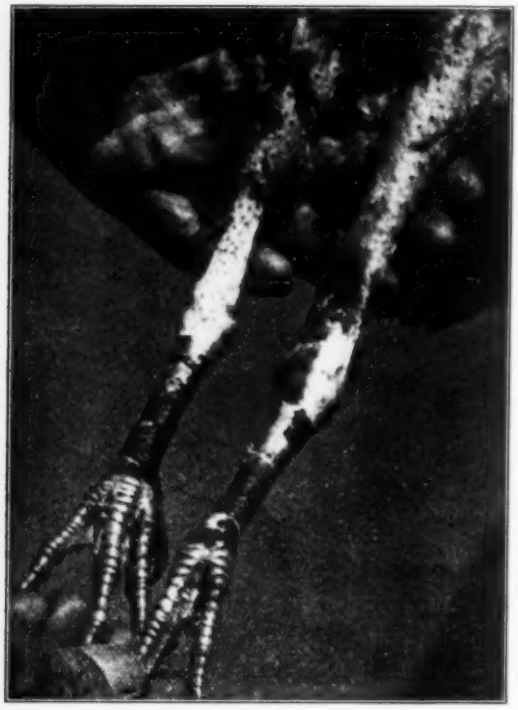

Fig. 1.—Legs of a fowl showing pellagrous symptoms produced by feeding maize spoiled by inoculation with a specific bacterium.

Fig. 2.—Legs of another fowl manifesting similar symptoms to those of fowl in Figure 1.

The fowl has had several attacks of diarrhea and has become very weak and emaciated. On the eighty-eighth day of the experiment, the legs below the knees were noticed to be red, inflamed, and bloody fluid was oozing through little cracks in the scaly skin. The skin became a dark brown color and on the seventh day began to show evidence of shedding around the edges in front. Five days after the lesions were first noticed the fowl was placed in a dark room and the spoiled meal discontinued. The shedding of this skin has progressed slowly and at the end of fourteen days the upper half of the legs in front had completely shed, when the fowl was sacrificed

* From the Laboratory of Clinical Medicine, Medical Department, Tulane University.

for permanent preservation. The skin where the lesions have shed has a lighter color than the normal and appears somewhat atrophied. The accompanying illustrations (Figs. 1 and 2) show the location of the lesions which consist of dark brown skin, loosened around the edges and shedding off. I am kindly permitted by Drs. Creighton Wellman and Isadore Dyer to quote them as saying these lesions resemble very much the lesions of pellagra in man and are unlike anything they have seen in fowls.

Experiments are now under way for the purpose of reproducing the disease in a much larger number of fowls and also in mammals. Other experiments are being conducted with a hope of determining whether this culture will produce a similar condition when grown on other material than corn, such as rice, wheat, potatoes, nutrient agar, etc. In the event other experimental cases confirm the present indications, the culture will be described promptly according to the descriptive chart of the Society of American Bacteriologists.

741 Carondelet Street.

EPIDEMIC POLIOMYELITIS

ELEVENTH NOTE: RELATION OF THE VIRUS TO THE TONSILS, BLOOD AND CEREBROSPINAL FLUID; RACES OF THE VIRUS

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GENERAL DISTRIBUTION OF THE VIRUS

The virus of poliomyelitis has been detected in very few instances outside the central nervous system, including the intervertebral ganglia (Flexner and Clark), of affected human beings and monkeys. Until within a few months, the only other site in which the virus had been demonstrated in human poliomyelitis was the mesenteric glands (Flexner and Lewis); and just recently it has been found in the tonsils and pharyngeal mucosa, but not in the cervical lymph-nodes or spleen, in another acutely fatal case (Levaditi and Pastia). The virus has been detected in a larger number of situations in monkeys experimentally infected. Besides the spinal cord and brain and the intervertebral ganglia (Flexner and Clark), it has been demonstrated in the nasal and pharyngeal mucosa (Flexner and Lewis, and others), regional lymph-nodes after a subcutaneous inoculation (Flexner and Lewis), mesenteric nodes (Römer and Joseph, Leiner and Wiesner), salivary glands (Landsteiner and Levaditi, Leiner and Wiesner), and in the cervical and prevertebral lymph-nodes (Leiner and Wiesner). Of these, the only location in which the virus appears to occur with any constancy is the nasopharyngeal mucosa.

RELATION OF THE VIRUS TO THE TONSILS

The portal of entry of the virus in human beings has still to be ascertained. Certain experimental results have indicated that the virus may both enter and leave the central nervous system by way of the nasal or nasopharyngeal mucosa (Flexner and Lewis).

During the past summer, epidemic poliomyelitis prevailed to some extent in and about Greater New York, and many cases were therefore studied at the Hospital of the Rockefeller Institute and other local hospitals. Several autopsies, which provided various organs and tissues for inoculation, were secured at the Rockefeller Institute Hospital and the Smith Infirmary. The tonsils were obtained in five cases in condition suitable for inoculation. The first inoculation was made with Berkefeld filtrates, but without success. But as the filtrates made from the spinal cord of the same patient gave also no result, the failure was accounted for on the supposition of a faulty method of preparing the material used for inoculation.

Subsequently, the tonsils and attached pharyngeal mucosa were rendered free from bacteria, not by filtration, but by treatment with a 0.5 per cent. solution of phenol (carbolic acid), which had previously been found not to destroy the virus (Flexner and Lewis). Emulsions of tonsils treated in this manner were employed for combined intracerebral and intraperitoneal inoculation of monkeys with the invariable results of setting up, after the usual incubation period, paralysis and the other symptoms and characteristic lesions of poliomyelitis. Hence it can be concluded that the virus exists in the tonsils and pharynx of human beings who succumb to poliomyelitis, as constantly as in monkeys after an intracerebral inoculation.

RELATION OF THE VIRUS TO THE BLOOD AND CEREBROSPINAL FLUID

The virus has not been found in the blood of human beings; and it has been detected in the blood of the monkey, at the height of the acute disease, only when large quantities are withdrawn and injected intravenously in a healthy monkey (25 c.c., Flexner and Lewis). In view of the demonstration of the virus in the tonsils, it was considered desirable to repeat the inoculations of human blood, taken at the height of the acute disease, and with larger quantities. Ten and even 20 c.c. were therefore injected partly intracerebrally and partly intraperitoneally into monkeys, but without producing any result.

The cerebrospinal fluid is devoid of demonstrable virus at the onset of paralysis in human beings and in monkeys. It has been detected in the fluid of monkeys three or four days after an intracerebral inoculation and at a period, therefore, before the onset of the paralysis and during the incubation stage. Cerebrospinal fluid was obtained from two human cases of poliomyelitis during the preparalytic stage of the disease, and with it monkeys were inoculated intracerebrally, but without causing any noticeable effect. This negative result does not indicate that the virus may not be present in the fluid at an earlier period and before any symptoms whatever appear, but it shows that if present there, it tends quickly in human beings, as in monkeys, to leave the fluid and become established in the nervous tissue.

RACES OF THE VIRUS

Previous experimenters have succeeded in implanting only about one-half the human strains of the poliomyelitic virus on monkeys (Römer, Leiner and Wiesner). We have succeeded in implanting on monkeys all the ten strains of human virus with which we have experimented. In order to succeed in all instances, it is necessary to inoculate emulsions of the human spinal cord, and preferably to make double inoculations into the brain and peritoneal cavity. In making the subsequent transfers of the virus, emulsions should again be employed until the human virus becomes adapted to the monkey, when filtrates may be substituted. The adaptation is accomplished apparently more readily and quickly with some strains of virus than with others.

The human strains of the virus not only infect monkeys less readily than do the modified or monkey strains, but the experimental disease produced by them is less severe and less fatal. Many of the monkeys infected with the early generations of the human virus tend to recover either completely or with residual paralyses; while after the strains have once become wholly adapted to the monkey, the paralytic disease appears in a more severe form, and recovery rarely, if ever, takes place. Coincidentally, the degree of infectivity rises, so that exceedingly minute doses of a filtrate are capable of producing constant infection. It is not improbable that the artificially evolved monkey strains of the virus may have lost, in some degree, power to infect human beings.

Sixty-Sixth Street and Avenue A.

ROUTINE MERCURIAL TREATMENT IN SYPHILIS EVEN AFTER INJECTION OF SALVARSAN

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Salvarsan does not have the effect at first heralded. It is not the *therapia magna sterilisans* which at one blow effects the destruction of all the spirochetes in the blood-stream. To be sure, in certain cases, but these I believe to be very few, it causes a complete disappearance of symptoms, which seems to be permanent. In certain other cases salvarsan exerts a remarkable influence, but the results are often only temporary. As judged by the effect on the Wassermann reaction, salvarsan is not of and by itself sufficient to produce an enduring serologic cure. The accompanying tabulated results are transcribed, for the greater part, from my protocol of Wassermann reactions done in the First Dermatologic Clinic, Vienna, during last fall. The other cases are all my own, observed and studied in Chicago.

An examination of the accompanying table shows the following results in the various stages of syphilis under observation:

A. Among the five cases of primary lues in which salvarsan was injected, Cases 21 and 23 are especially interesting. In both, Wassermann reactions made as late as the forty-fourth and fiftieth days, respectively, were negative. These patients were both injected shortly after the appearance of the primary lesion, while patients 5 and 20, who were injected late in the primary stage (fourth and fifth week), both showed positive reactions. In Case 27 the reaction, made very early in the disease, was negative. During this time, however, it is usually negative, wholly regardless of treatment.

B. Among twenty cases of secondary lues in which there were macular, maculopapular and large and small papular syphilids, all of a dry nature, positive results are recorded after intervals of from six to ninety-three days following the injection of salvarsan, while in the few cases recorded showing moist lesions or pustular syphilids the disappearance of the Wassermann reaction seems to be much more rapid.

TABLE OF FORTY-SEVEN PATIENTS TREATED WITH SALVARSAN

No.	Diagnosis.	Date of Injection.	Date of Reaction.	Interval in Days.	Result of Reaction.*	Remarks.
1	Cicatrizing gumma	10/15	10/22	7	++	Improvement of lesion.
2	Lues latens	9/ 3	10/22	48	—	
3	Secondary lues	9/17	10/22	39	+	Small papular syphilid.
4	Secondary lues	8/31	10/25	55	+	Injection preceded by 25 Hg inunctions. On October 25 no signs of lues.
5	Primary lues	10/22	10/25	3	+	Injection late in primary stage.
6	Lues cerebrospinalis	9/17	10/25	37	—	
7	Secondary lues	10/13	10/27	14	++	Maculopapular syphilid.
8	Lues latens	8/18	10/27	40	—	
9	Lues latens	9/25	10/27	31	+	
10	Lues latens	10/11	10/27	16	+	
11	Secondary lues	10/ 7	10/29	22	++	Roseola.
12	Secondary lues	8/26	10/29	63	++	Maculopapular syphilid.
13	Secondary lues	10/11	10/29	18	++	Roseola.
14	Tertiary lues	10/23	10/29	6	—	Ulcerating gumma.
15	Secondary lues	10/23	10/29	6	++	Roseola present on October 29.
16	Secondary lues	10/27	11/ 5	9	++	Roseola still present on November 5.
17	Secondary lues	10/24	11/ 5	12	++	Mucous patches on tonsils.
18	Secondary lues	9/28	11/ 7	40	++	Large papular syphilid.
19	Secondary lues	9/28	11/ 7	40	+	Maculopapular syphilid.
20	Primary lues	10/26	11/ 7	12	++	Remains of sclerosis at time of injection.
21	Primary lues	10/ 1	11/14	44	—	Injection early. Reaction has never been positive.
22	Secondary lues	10/20	11/14	16	++	Roseola.
23	Primary lues	9/24	11/14	50	—	Injection early. On November 14 no signs of lues.
24	Secondary lues	10/24	11/14	20	++	Large papular syphilid.
25	Primary lues	10/29	11/14	15	—	Wassermann positive before injection.
26	Lues latens	9/24	11/14	50	—	
27	Primary lues	11/12	11/15	3–4	—	Injection very early after appearance of initial sclerosis.
28	Secondary lues	10/29	11/15	17	++	Roseola.
29	Secondary lues	11/10	11/22	12	+?	Mucous patches on tongue.
30	Secondary lues	10/24	11/22	29	+	Condylomata about anus.
31	Secondary lues	8/26	11/22	87	—	Maculopapular syphilid.
32	Secondary lues	11/ 3	11/22	18	++	Papulo-squamous syphilid.
33	Secondary lues	9/26	11/22	56	+?	Roseola.
34	Secondary lues	11/10	11/22	12	++	Large papular syphilid.
35	Lues latens	9/19	11/22	63	—	
36	Lues latens	10/ 6	11/22	46	—	
37	Secondary lues	9/20	11/22	55	+	Squamous syphilid.
38	Secondary lues	9/13	11/24	72	—	Roseola. No signs of lues on November 24.
39	Secondary lues	9/16	11/24	68	—	Roseola. Latent on November 24.
40	Secondary lues	8/22	11/24	94	—	Roseola.
41	Secondary lues	8/26	11/24	90	—	Papular syphilid. Latent on November 24.
42	Secondary lues	10/21	11/25	34	—	
43	Secondary lues	10/13	11/25	41	—	Papulopustular syphilid.
44	Secondary lues	9/10	11/25	75	—	Roseola.
45	Secondary lues	8/24	11/25	92	+?	Roseola.
46	Secondary lues	10/11	11/25	45	+	Papulopustular syphilid.
47	Secondary lues	9/16	11/25	68	—	Moist papules about anus.

* The sign +? means faintly positive.

C. In seven cases of latent lues in which salvarsan was injected, two showed positive reaction, respectively on the thirty-first and sixteenth days after the injection (Cases 9 and 10).

D. A case of cerebrospinal lues gave a negative reaction thirty-seven days after injection (Case 6). Of two cases of tertiary lues, Case 2 gave a positive reaction after seven days, while Case 14 gave a negative reaction after six days.

Salvarsan is valuable in selected cases, and more careful discrimination in the indications for the remedy will give vastly better results. It is of marked value in those severe cases of lues which cannot be controlled by mercury alone; for example, in cases of impending perforation of the palate and of excessive mucous membrane involvement. Its effect on bone lesions of syphilis is rapid, but unfortunately temporary. I have seen severe cases of luetic periostitis clear up as if by magic, to return again within three to eight weeks. Its influence in specific lesions of the central nervous system is sometimes astoundingly rapid and encouraging, but is usually short-lived unless followed or supplemented by thorough mercurial therapy.

Various cases of this temporary benefit have come under my observation; and of these I will briefly cite two.

CASE 1.—Mr. C., aged 22, was injected with 0.6 gm. of salvarsan in oily suspension into the buttocks. He was then wholly without symptoms for fourteen weeks, when he consulted me, at which time he had a marked maculopapular eruption of general distribution, general adenopathy, vesperal headaches, and a large mucous placque on the left buccal mucosa, near the angle of the mouth. I started him on vigorous mercurial treatment, injections of mercury salicylate in oil of sesame, and his objective symptoms rapidly cleared up. His general condition has markedly improved and for the past six weeks he has gained in weight at the rate of 2 pounds a week.

CASE 2.—Mr. N., aged 56, had luetic disease of the eighth nerve, marked by tinnitus and deafness. He had received 0.5 gm. of salvarsan intravenously, and very soon noted marked improvement of symptoms. Ten weeks later he was in the same condition as previous to the injection. He is now also getting treatment identical with Mr. C. (Case 1), except for moderate dosage of potassium iodid, and is making satisfactory progress.

These cases merely indicate the points emphasized in the preceding tabulation and show that salvarsan cannot be relied on absolutely, or even relatively, by itself to effect a symptomatic cure. Ehrlich,[1] in his last published statement on the subject, says that certain cases of lues uninfluenced by mercury have, after a salvarsan injection, responded promptly and encouragingly to classic mercurial treatment, showing that salvarsan has had some influence on the spirochetes which prepares the way for subsequent mercurial therapy. I believe that we should look on salvarsan as an adjuvant to mercurial treatment, and accord it a place in our therapeutics of specific disease, but that we should carefully select the cases for treatment with it. Also, after having obtained benefit from the preparation, we should hope for the maintenance of this good effect only by the use of classical routine mercurial therapy. In all events, I make a plea for the use of mercury in lues, whether salvarsan has been used or not; it is a drug on which we can rely.

32 North State Street.

1. Ehrlich: Centralbl. f. Bakteriol. Jena, Sept. 4, 1911, p. 94.

PELLAGRA TREATED WITH SALVARSAN

REPORT OF NINETEEN CASES

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AND
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Since January, 1911, nineteen cases of pellagra have been referred to us. Some of these patients have been treated by us individually; the others we have treated together. For the purpose of this report, we have combined all of these cases.

CASE 1.—January 14, one of us (Crowell) treated his first pellagra patient with salvarsan, giving 0.6 gm. This treatment was given on account of the beneficial effects of arsenic, especially in the form of atoxyl, in the treatment of pellagra, also owing to the analogy between pellagra and the diseases produced by the spirilla. The first manifestation of the disease in this case occurred six months previously. When the patient was first seen, in January, 1911, the symptoms included a marked dermatitis of the hands, forearms and face, the characteristic beefy-red tongue, marked gastro-intestinal symptoms, the diarrhea being very profuse and troublesome. In a few days after the initial dose the patient began to show marked improvement, the eruption disappearing completely in fifteen to twenty days; instead of having twelve to fifteen stools a day he had only one or two normal movements. He returned in the middle of February and received the second dose, and continued to return about every twenty days until he had received five doses of 0.6 gm. of salvarsan. At the present time he has apparently recovered; he has regained his weight and his mental symptoms have entirely disappeared.[1]

No other patients were treated until June 25, when J. F. B. was referred to us by Dr. R. Morrison King of Concord.

CASE 2.—The patient, a man, aged 33, had never been sick until about ten weeks before examination, when he became nauseated, had a bad taste in the mouth, and developed characteristic tongue and diarrhea. The dermatitis of his hands and face first appeared three weeks before coming into the hospital. On June 26 he was given his initial dose of 0.6 gm. of salvarsan. The results were as encouraging as in Case 1. Patient received the second dose on July 5, and the third on the 15th. He was last seen August 1, at which time the eruption and gastro-intestinal symptoms had disappeared and he had practically regained his lost weight.

During August and September Dr. King of Concord referred to us five other cases occurring in his practice.

CASES 3 and 4.—Of these patients, Johnny and Pansy L., aged 6 and 8, respectively, deserve special attention. Both became sick in August, 1910, with bowel trouble. In May, 1911, they began to develop a dermatitis of the arms, legs and face. They were given their initial dose of salvarsan on June 28. Johnny received 0.2 gm. and his sister Pansy 0.3 gm. at intervals of ten days for three doses. They have, so far as can be told, entirely recovered.

CASE 5.—In this patient, Miss P., the first manifestations of the disease appeared during the spring, 1910; patient had quite a marked attack and was very ill all summer, though the case cleared up in the fall and the patient passed a fairly comfortable winter. All the symptoms returned in the spring of 1911, in an aggravated form, however, and when the patient was seen, in the latter part of July, she was in a very enfeebled and desperate condition. The dermatitis had disappeared but the gastro-intestinal symptoms were marked. She was given one dose of salvarsan and showed marked improvement for a few days; then she began gradually to grow worse and died in the latter part of August. The salvarsan was given only once.

Each of the other fourteen patients, with the exception of one who is still under observation, received three

1. This case was orally reported before the Tri-State Medical Society at Raleigh, N. C., February, 1911.

doses of 0.6 gm. of salvarsan at intervals of ten days. They all showed pronounced pellagra, the diagnosis having been made only a short while before treatment. Without exception all were apparently recovered when dismissed.

One of these patients gave a history of syphilis three years ago. He was last seen August 16, five weeks after the first treatment, and stated that he was feeling better than he had felt for several years.

All of the patients were treated either at the Presbyterian and St. Peters hospitals or the Charlotte Sanatorium. The intravenous method of administering the drug was employed; the patients usually remained in the hospital for about three days after injection.

The results of this treatment have been very satisfactory with us, and the patients will be watched with great interest to see if there is any return of the symptoms next spring.

It is too early to make any claims at all; however, we hope that our report will be the occasion of an increased trial of this drug in a disease which is rapidly increasing and which yielded but slightly to treatment heretofore.

A CASE OF PELLAGRA

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The following case of pellagra is of interest in that it was seen practically at the inception of the disease:

History.—R. M., farmer, aged 65, first seen April 14, 1911, at the Asheville Free Dispensary, had been deaf for five years; otherwise his health had been good until within the last two weeks, during which time his appetite has been poor; he had suffered a little with eructations and sour stomach and had lost a little strength. He was given a "stomach mixture." Three days later he appeared with an erythema on the backs of both hands and lower part of forearms and complained of burning and itching in the inflamed area. The distribution of he erythema was symmetrical and "glove-like"; the skin was swollen, infiltrated and of a dull red color, pitting readily, and the redness disappearing temporarily on pressure. On the back of the right hand was a decided bleb. There was nothing abnormal, at this time, about the tongue, except that it was very red and somewhat fissured in the center. The patient's appetite was still poor and, in addition, he complained of being very nervous and irritable. Knee-jerks were absent; no Romberg, no Argyll Robertson pupil. Weight, 121 pounds; normal weight, 130. The patient was seen a week later. The bleb on the right hand had dried up; the hands were much less swollen; the skin was dry and cracking and there was a beginning desquamation. The tongue was decidedly fissured down the center and the margin was stripped of epithelium; he was having five or six movements daily and suffered greatly with sleeplessness.

Course and Treatment.—The patient was given hexamethylenamin, 7½ grains, as well as Fowler's solution, 5 minims (increasing to 25 minims), three times daily. There was little change in his general condition during the next six weeks; the nervousness and insomnia persisted and the diarrhea was but slightly abated, but the dermatitis showed steady improvement and the subjective symptoms, burning and itching, disappeared entirely.

June 20, 1911, a decided improvement was noticed. The skin of the hands was scaling but slightly; the diarrhea was no longer troublesome, although the insomnia continued to distress the patient. The patient had a slight puffiness of the eyelids and somewhat swollen ankles, so that the arsenic was discontinued for a few days.

Sept. 1, 1911, tongue somewhat reddened; dermatitis entirely gone. Insomnia no longer troublesome, weight 126 pounds, appetite good, with no gastric or intestinal symptoms. Patient looks well and says he has never felt better.

DIET AND PELLAGRA

A WARNING AGAINST ILL-ADVISED ATTACKS ON FOODSTUFFS

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The recent editorial on pellagra in THE JOURNAL[1] is the first expression, in a medical publication of nation-wide circulation, of an alarm I have felt and often expressed before local, state and national gatherings.

With the admission that "pellagra therefore becomes one of the most, if not the most, important public health problems of the present," there will follow a freer expression of opinion and a disposition to deal openly with a situation which was either wholly ignored or received attention only in afflicted communities.

Some time ago I submitted statistics officially accounting for 7,000 cases of pellagra in this country, and included a map showing its geographical distribution.[2] I was fully convinced at the time that the figures expressed only an infinitesimal fraction of the whole number of cases of pellagra in the United States; but it was realized that, in dealing with a subject about which there was so much skepticism, it was best to remain conservative, especially in print; hence only those cases were included that were officially vouched for by the health officers of the various states. While the statement of the presence of 7,000 cases of a fatal, and hitherto practically unknown, disease may have seemed somewhat extravagant to some, I was not in the least surprised when the subsequent statement came from Georgia of the existence of 50,000 cases in that state alone.

A fearless and impartial investigation will show that this disease has invaded many sections of our country in similar proportions. The opening of a pellagra-sorium in Atlanta, Oct. 1, 1911, is but the preliminary step in what is certain to become a far-reaching crusade against this insidious disease, and is only in line with what Italy has been doing for a century. In that country no less than twenty-two sanatoriums for the care of pellagrins are in operation. Sambon, heading a distinguished body of scientists, has just entered on his second expedition for the British Pellagra Commission, financed by Mr. Wellcome of London. His studies on this occasion will be confined to Austria and Tyrol, and he expects to add indisputable substantiation to his theory of the transmissibility of the disease through the medium of the *Simulium reptans*, or sand-fly—a theory advanced by him during his memorable trip to Italy last year.[3] Of all theories yet proposed it is the most tenable and is strictly in line with the proved transmission of yellow fever and malaria by the mosquito, and of other well-known and clearly established insect-borne diseases.

Sambon soon found, on entering the field of activity in Italy, that the Italians, instead of studying pellagra,

1. THE JOURNAL, Sept. 2, 1911, p. 827.
2. Zeller, George A.: Internat. Clinics, 1911, i, 1.
3. Capt. J. F. Siler, Medical Corps, U. S. Army, was with Sambon during his researches in Italy, having been specially detailed for that duty by the Surgeon-General of the U. S. Army at the close of a period of study at the London School of Tropical Medicine. He has been instrumental, through his position as lecturer on tropical diseases of the New York Post-Graduate School of Medicine, in enlisting the support of two public-spirited citizens of New York and Washington, who have voluntarily contributed $15,000 to finance a field expedition to study the disease at close range in a section of our country not yet decided on—presumably, however, one of our southern states. Captain Siler is under orders to proceed to the Philippines for a routine tour of duty and will for that reason be unable to accompany the expedition, but the fact that two great nations are simultaneously sending expeditions into the field emphasizes the importance that attaches to the disease, and justifies the stand recently taken in the editorial columns of THE JOURNAL of the American Medical Association.

had really been studying corn, and had accepted certain coincidences as established facts. In certain districts where rural free bakeries and model kitchens were established and corn was eliminated, the resultant diminution of pellagra, if any, was ascribed wholly to the withdrawal of the maize, and little or no credit was given to the higher standard of living and the more hygienic surroundings brought about through this public health crusade. He found also that the coincidental appearance of pellagra and the introduction of maize from America was a myth, and that a revival of medical literature about this time made it possible to associate the two events as cause and effect without other than empirical observation.

So fixed, however, does popular prejudice become that the maize theory has tenaciously survived for a century and a half, and has, in the judgment of those who enter the field of study with open minds, done much to retard the true solution of the cause of the disease. Lombroso, himself—the greatest and most persistent advocate of the maize theory of the disease—in his preface to Marie's treatise on pellagra, says:

> It is impossible to estimate at once the harm which has resulted from the many visionary and obscure theories that have been advanced regarding the etiology of pellagra. Had it been a question of purely theoretic import, nothing would have been lost but time and paper and perhaps a little of the reputation of those authorities who have too often been misled by their chimerical plans of salvation; but in combating pellagra great sums of money have been misspent through the failure to attack the true causative factors. The most diverse and untenable hypotheses have been considered in turn. In former times the sun, impure water, insanitary dwellings and even the absence of salt were regarded as the real causes. The expenses incurred on the basis of these Quixotic presumptions have been much greater than it would have been to attack at the root the actual causes of the malady. The deception which followed all these vain attempts not only retarded, but even thwarted, serious and effective investigation.

Thus Lombroso, the master pellagrologist, in his insistent adherence to a preconceived theory, sounds a note of warning against "visionary and obscure theories."

The harm that might result from the acceptance of unproved theories is two-fold. One of these is purely commercial, and, in a matter affecting the life and health of a people, is not worthy of consideration, even though a great industry were to suffer. In a national conference on pellagra in the South, two years ago, I, hailing from the banner corn-producing state of the Union, did not fail to emphasize the fact that the disease had made its appearance in Illinois and that the people of that state, regardless of their commercial and agricultural interests, felt that if corn were guilty of spreading disease and death among the people, the sooner that fact was established the better.

In this connection, a feeding-experiment of unusual extent and duration was inaugurated in the Peoria State Hospital. Fifty-six patients subsisted for one year on a carefully selected non-corn diet, and fifty-six patients in another group were given an excessive corn diet for a similar period. A careful record was kept, and the closest observations were made with reference to the incidence of pellagra, with the result that at the expiration of twelve months there were no developments that were in the least conclusive. A few cases of pellagra developed in each group, but on the whole the corn-fed patients showed fewer cases than the patients who subsisted on the corn-free diet.

The recognition of the disease in Illinois resulted in the creation by the governor of the state of a pellagra commission which, after two years of the most painstaking research on the part of the most efficient scientists, is about to publish its report. This report will deal with our feeding-experiment in detail; it will be exhaustive and thorough, and will prove a valuable contribution to the literature on the subject and will, I believe, make no claims to a final solution of the problem. I am not a member of the commission and am in no way privileged to speak for it; but the point I desire to make is that hasty conclusions are not only unwise and misleading, but may be positively injurious in their effect. It is a well-known fact that nutrition plays an important part in combating wasting diseases of every kind, and a stand that prejudices people against any accepted article of food may cause incalculable harm. The basis of the sanatorium treatment of tuberculosis is eggs, milk and other nutritious foods—in fact, overfeeding. Imagine the harm that would result were someone to suddenly advance the theory that tuberculosis was due to using milk or eggs. Fortunately, the specific cause of tuberculosis is known; hense such a stand is impossible; but in the case of pellagra those theories which attack available foodstuffs—be they corn or cornmeal, vegetable oils, or other substances—may, through depriving the masses of a nutritious diet, so debilitate the system as to lay the foundation of the very disease it is intended to eliminate.

While the overwhelming majority of writers ascribe the cause of pellagra to corn, wisely or unwisely, it is not apparent that the consumption of corn in one form or another has in the least degree diminished in this country. The staple has been too long an article of diet with our people to be discarded merely because the real cause of pellagra has not as yet been scientifically demonstrated.

In the course of an investigation of the relationship of corn and pellagra, two years ago, I induced a couple of scientists to accompany me to the University of Illinois where experiments with corn and the parasites that afflict it have been carried on for forty years. I told these men, who were from a section of the country where little corn is raised, that sixty-five articles of commerce were made from corn. In the presence of President James of the university, I repeated the assertion, asking him to correct me if I had overstated the matter. He promptly replied that corn entered as an ingredient into 135 distinct articles or preparations!

Now comes Dr. Mizell,[4] who, by an ingenious combination of coincidences, associates the consumption of cotton-seed oil with pellagra. I have carefully studied his article and I submit this single quotation as an example of a hasty conclusion and, at the same time, sweeping condemnation of the very essentials of a nutritive diet. He says:

"In conclusion I wish to advise against the use of fats and oils of every kind except castor oil."

Literally construed, this would exclude butter, and, indirectly, even milk; yet would tolerate a product of the *Ricinus communis*, three beans of which have been known to cause the death of an adult by reason of the presence of the poisonous principle ricin. Of course he does not advise the use of castor oil as a diet; but why advocate its administration at all in the face of his embargo on "fats and oils of every kind?" His theory bears the same relationship to a product of the southern

4. Mizell: Jour.-Rec. Med., 1911, lvii, No. 3, p. 111.

states as the maize theory does to the Mississippi and Missouri valleys, and is of importance only in that it strikes at a recognized and necessary article of diet.

The commercial loss would be of no consequence in either case were the theory proved or even tenable; but the actual and immediate harm that would result, were either item withdrawn as a food, cannot be measured. The government keeps a jealous eye on our food products, and its stamp of approval is universally accepted by the consumer. We found, in seeking a corn diet, that in every instance in which corn products are a part of a preparation, the fact was stated on the label. This is true of cotton-seed oil preparations. While it does not enter into as many articles of diet as corn, cotton-seed oil, in one form or another, has become indispensable in the bakeries, the hotels and the domestic kitchens of the country. To curtail its use or to discard it entirely would drive the consumer, particularly the poor, to seek other and less nutritious food with a resultant decline in physical vigor and its inevitable train of evils.

Pellagra is certainly not due to both corn and cotton-seed oil. One or the other is exempt—probably both. In the meantime, however, people must live, and in order to do so must avail themselves of the standard foods. This is certainly an inopportune time to arouse prejudice against any accepted and wholesome product. In times like these, when a disease new to us is slowly invading our territory, people should not be alarmed by injudicious condemnations of their food-supply. Depression, anxiety, melancholia and insanity are the accompaniments of pellagra. If to antecedent anxiety and depression is added a doubt as to this or that food, the mental symptoms will be aggravated, and the patient suffers correspondingly. In the light of our present knowledge of pellagra, it is safe to advise the public to continue to use the standard food preparations, to keep healthy bodies and to trust to the eminent men now engaged in research work to determine speedily the real cause of the disease.

CHOLECYSTITIS AND CHOLELITHIASIS IN THEIR RELATION TO PREGNANCY*

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ETIOLOGY AND ENTRANCE

That the etiology of cholecystitis depends on bacterial infection is the generally accepted opinion; and it is believed that cholelithiasis may result from cholecystitis, and that cholelithiasis, having once become a condition or lesion, may then become a factor in the production of cholecystitis.

While it is generally conceded that the portal circulation is the avenue of entrance, the bacteria may enter the common duct by way of the duodenum; or possibly through the hepatic artery and the lymphatics they may find their way to the biliary tracts. And while normally the liver acts as a toxin filter, yet, when overtaxed, its filtration must be but imperfectly accomplished, and the effects of this non-fulfilment of function in so important an organ as the liver are liable to be disastrous.

INFECTION

These etiologic infections may be mixed or simple; if mixed, one organism may prevail to-day and may die out, and another organism take its place to-morrow. Hence, a gall-bladder may at one time contain sterile bile, and at another time not so remote it may contain non-sterile bile; in such instances the primary infection may escape observation. Consequently, diagnosis based on sterility or non-sterility of the bile may be misleading, if not positively erroneous.

Recent bacteriologic studies do not support the former idea that human bile is sterile. While animal bile may be sterile and therefore not a suitable culture medium, demonstrations on human bile seem to indicate that the opposite is the condition that prevails, namely, that human bile has but little antiseptic action, and that it may be used as a medium for certain organisms.

Again, some bacteria are very difficult to detect in human bile by the ordinary culture methods; this furnishes another reason for using caution before accepting the generally expressed opinion that human bile is sterile in its normal condition.

Windsor[1] reports a patient operated on for cholecystitis in whom the bile was sterile, but bacteria (*Streptococcus pyogenes*) were found in an analysis of the gall-stones present. The same author,[2] from an examination of the contents of the gall-bladder in over a hundred cases, concludes that in a large proportion of cases organisms are present in the contents of the gall-bladder whether examined during life or after death—even when the gall-bladder itself shows no signs of disease. Herter[3] also asserts that bacteria are likely to be found in human bile when there is a pathologic condition far remote from the liver, and explains their presence as evidence of terminal infection.

The study of bacteria found in bile, under circumstances such as exist in diseases not referable to the biliary tracts, would in itself furnish an interesting topic, but for the purposes of this particular subject it is sufficient to state that many different bacteria have been found under various conditions in the gall-bladder, both in health and in disease. The following is an incomplete list compiled from the records of various authors: *B. typhosus, B. paratyphosus, B. coli,* pneumococcus, *Staphylococcus pyogenes aureus et albus;* also streptococci and various diplococci. Blachstein and Welch[4] have demonstrated that the *B. typhosus* has a predilection for the gall-bladder.

It has been demonstrated also that many of these have existed in this locality for years, as evidenced by recent findings in regard to the typhoid bacillus, this particular bacillus apparently surviving for as long a period as twenty-nine years in the gall-bladder; while this bacillus, the *Bacillus coli,* the *Streptococcus pyogenes,* the *Staphylococcus pyogenes aureus,* and others, have been demonstrated in gall-stones, where they have retained their virility for varying periods of time. But while the bacteria mentioned are the ones most frequently found in gall-stones, it would be reasonable to conclude that any bacterium might become a focus for their formation. The composition of gall-stones is a subject that appeals to most physicians, as it furnishes evidences of disease; and if organisms are demonstrated as a component part of gall-stones a strong etiologic factor is thereby made available for diagnostic purposes.

From whatever source these bacteria may come, it is safe to say that if anything hinders their passage through, or their filtration from the liver, their place of

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Windsor: Quart. Jour. Med., Oxford, 1911, iv, 118.
2. Windsor: Quart. Jour. Med., Oxford, 1911, iv, 120.
3. Herter: Med. News, 1903, lxxxiii, 530.
4. Blachstein and Welch: Bull. Johns Hopkins Hosp., 1891, ii, 96

refuge and their abiding place from that time on is the gall-bladder; and while we do not know the precise function of the gall-bladder, we do know that it serves as a general rendezvous for these nomads.

That there is a difference of opinion as to the real functioning of the gall-bladder is evidenced by the following: Mayo[5] writes as follows: "The gall-bladder is important as a means of protection, especially to the pancreas, and should not be removed unnecessarily." Kehr[6] makes the following statement: "The gall-stone operation is practically free from danger and the loss of the gall-bladder causes no appreciable disturbance."

While the infecting agent is the primary factor in the etiology of cholecystitis and cholelithiasis, there are secondary factors that must be taken into consideration; these may be anything that reduces the power of the gall-bladder and biliary ducts, or interferes with the free flow of bile.

SYMPTOMATOLOGY

It has been interesting to note the progress in the development of the symptomatology of these two hepatic lesions during the last few years; and while heretofore we have been in almost profound ignorance of any true symptoms leading up to their correct diagnosis, we seem now to be in the possession of some constant symptoms in the gastric lesions that occur concomitantly with these hepatic changes. And we are becoming familiar with the term "flatulent gall-stone dyspepsia" initiated by the surgeons. While jaundice, the one-time pathognomonic symptom, is now relegated to a less important place in the list of constant diagnostic symptoms, its absence not affecting greatly the correct diagnosis, its presence is an additional factor indicating the presence of a toxic agent, or that there is or has been some hindrance to the normal flow of bile, possibly both. Pruritus usually succeeds the manifestation of jaundice, pain is often a misleading symptom, while enlargement of liver and tenderness on pressure are by no means constant symptoms.

Kehr,[6] after operating on 1,668 patients with gall-stones, writes that only in exceptional cases is it possible to state positively the presence of gall-stones; that he uses the history of the case rather than the actual findings at the moment, and that when these formations are found at time of operation for something else, it is always possible to follow the history back to sufficient symptomatology for purposes of diagnosis. I believe that it is to this going back over the history of these patients by our surgeons that we owe the most of the constant features of these lesions, but they not only recognized them in patients already brought to the operating table because of other lesions; they also applied this knowledge with gratifying results in the diagnosis of these hitherto baffling diseases.

Sherren[7] reports indigestion as a constant symptom for five years or longer in twenty-six out of forty operated on for gall-stones; Rolleston[8] gives indigestion as a result of gall-stones; Lichty[9] asserts that 75 per cent. of all gall-bladder cases may be associated with a disturbance of gastric secretions, and that of this 75 per cent. two-thirds have hyperchlorhydria. This writer places some importance on the following as a symptom: A patient with gall-stones may awaken about 3 a. m. with epigastric pain similar to that of nervous dyspepsia. And while he agrees with Rolleston that there may be a small amount or even an absence of hydrochloric acid during an attack he asserts that there is an excessive amount—a hyperchlorhydria—during the interval.

FREQUENCY IN WOMEN

The one fact of primary importance in this study is the fact that gall-stone disease occurs in women three times to its occurrence once in man. Other facts relevant to this are that 90 per cent. of the women who have gall-stones have borne children,[10] and that 90 per cent. of the women who have gall-stones and have borne children identify the beginning of these symptoms of cholelithiasis with some particular pregnancy (Mayo[5]).

The occurrence of gall-stones in infancy or childhood is rare, and it occurs under 20 years of age in but 1 per cent. of all the cases.

Statistics show that 75 per cent. of all cases are to be found in persons over 40 years of age. This statement does not mean anything when we take into consideration the fact that it is the result of the compilation of data obtained during the period when we had no definite symptomatology to guide us in the detection of these hepatic lesions, and proof of their existence was reached in operations for other pathologic conditions, or possibly by discovery, often accidentally, of these formations in the intestinal discharges. In these cases the hepatic lesion or lesions may have been latent for months or years, or if there were expressions of activity they were not recognized as such. Rather might it be said that 75 per cent. of all patients over 40 years of age who are operated on for gall-stones furnish evidence by their history that they have for years been subjects of one or both of these.

Further, I have no doubt that careful detail work done in regard to the history of these cases would eventually lead up to the opinion that in the life of woman the time for the formation of gall-stones is the child-bearing period.

Granted that the child-bearing period is the time in which the initial lesions (the etiologic factors) are posited, wherein lies the causative factor, and what is the connecting link between that factor and pregnancy? Are the changes in normal or physiologic pregnancy sufficient at any time to cause these hepatic lesions?

During the early part of pregnancy there is the factor of disordered nutrition pending final adjustment and adaptation to the new requirements; this is the order in normal pregnancy, and so long as this process of adaptation does not bring about pathologic conditions it remains physiologic, and in due time the new order of living is established, and the old way is adjusted to and lost in the new. During this process of adaptation there is greater functioning to be established in all the organs; through the liver more of the products of metabolism, both anabolic and catabolic, are passing. And it is quite possible that this organ does not all at once meet these new and greater demands, and that many opportunities are offered the increased bacterial procession through the liver to stop in quarters wherein are attractions for them and thus become causative factors in the production of cholecystitis or cholelithiasis.

5. Mayo: Innocent Gall-Stones a Myth, THE JOURNAL A. M. A., April 8, 1911, p. 1023.
6. Kehr, H.: Cholelithiasis, München. med. Wchnschr., March 21, 1911; Abstr. in THE JOURNAL A. M. A., April 29, 1911, p. 1305.
7. Sherren, J.: Diagnosis of Gall-Stones, Lancet, London, April 1, 1911; Abstr. in THE JOURNAL A. M. A., April 29, 1911, p. 1298.
8. Rolleston: Diseases of the Liver, Gall-Bladder, and Bile-Ducts.
9. Lichty: Diseases of the Gall-Bladder and Biliary Ducts, Am. Jour. Med. Sc., 1911, cxli, 73
10. Osler: Principles and Practice of Medicine, Ed. 7, 1910, p. 549.

Goldsborough and Ainley[11] by their demonstrations with phenolsulphonephthalein on renal activity have proved that metabolism in pregnancy and the puerperium show great alterations normally, and that there is a decided difference in metabolism in the non-pregnant and the pregnant condition of the same individual. One particular statement made by them was of great interest in this particular study; namely, in the last month of pregnancy the power to eliminate falls far below that of the non-pregnant individual; while they demonstrate conclusively that throughout the entire period of gestation the normal obstetric patient eliminates more slowly than the normal non-pregnant individual.

From this I would conclude that throughout the entire period of gestation there are changes in metabolism sufficient to furnish etiology for these diseases of the biliary tracts; and that aside from the question of adjustment that must inevitably take place in the early months of pregnancy, the question of elimination during the later months in particular must be considered. In this are involved the changes going on in connection with the growth of the fetus, the placenta with its unique cycle of growth and senility while still within the body of its host, and possibly the internal secretions from the ovaries.

One and all of these, although eventually they become components in the great physiologic life-cycle, yet, pending their final adjustment, may become or furnish sufficient cause for disease.

ICTERUS NEONATORUM

In connection with the question of maternal adaptation, that of the new-born child may be mentioned; the child, immediately on its separation from the maternal circulation, faces a problem of great importance in its adaptation to its new mode of life, and the demands made on it. In this adjustment the liver of the child plays an important part, as is manifested by the great frequency of jaundice in the first week of life; this jaundice is an evidence of an effort at normal physiologic adjustment in which the material furnished is in excess of the working capacity of the organ, and if the liver by overworking is able to handle this excess and to become adjusted before there arises a pathologic condition, the jaundice subsides.

As this condition often results when the child is prematurely born, more evidence is thereby furnished in support of the above theory.

PRESSURE

At all times during the last months of pregnancy a predisposing cause is always present in the form of pressure either directly or indirectly exerted on the liver by the gravid uterus. If, in accordance with the findings of Charcot and Gombault, Naunyn and Sherrington, referred to by Windsor,[12] the bile remains sterile only so long as it flows unhindered through its ducts, and after ligature of the common duct the bile speedily becomes infected, then normal pregnancy at all times furnishes a mechanical factor in pressure that is, in itself, sufficient cause for inflammation of the gall-bladder as well as for the production of gall-stones. And the same factors that in the one case may furnish a cause for the primary occurrence of cholecystitis or cholelithiasis during a pregnancy, may in another instance arouse and throw into activity one or both. It may be a cholelithiasis that has lain dormant a variable length of time until a primary or recurring pregnancy has produced the factors necessary for its arousal.

THE PSYCHIC FACTOR

I am of the opinion that the psychic feature of pregnancy has a great deal to do, both directly and indirectly, with the etiology of these hepatic lesions. In pregnancy the feeling of dread is ever present, and is far-reaching in its influence on the circulation, the respiration, the renal activity, the nervous system *per se*, the nutrition, and no doubt the internal gland-secretion. During the last few years I have proved by the study of 300 cases of child-bearing women that without exception they felt a dread almost beyond words to express; that there is always a fear of death present—a going down into its shadows—every time this function of perpetuation of the race is gone through with. And, however much we as physicians and surgeons may minimize the suffering and the danger, each one of us knows that this view of the patient is true, and however calm and self-reliant the patient may be, apparently, there is always underlying her apparent tranquillity this great fear that overshadows all else. This psychic feature is ever present, through pregnancy, parturition, and the puerperium —and it often manifests itself by means of the increased activity or derangement of the functions of the body.

Crile,[13] in writing on the psychic factor in the etiology of hyperthyroidism, claims that it is stronger in surgery than we have estimated it to be; he assigns to it an important place as a causative factor of hyperthyroidism following either a simple or a radical operation on the thyroid gland, and concludes that it should be given more attention in the consideration of surgical measures. While readily accepting this theory in regard to the importance of the psychic feature of surgery, I am of the opinion that it should be extended to include a consideration of the great and deleterious influence that the psychic feature of pregnancy brings to bear on this ever-present life-problem.

In addition to the indirect effect of emotion during pregnancy, in the production of these hepatic lesions, might be mentioned the direct etiologic factor that it furnishes by its action in depressing the resistance of the patient throughout her entire economy; the liver, no doubt, being primarily affected.

PATHOLOGIC PREGNANCY

The liver has assumed so important a position in the consideration of pregnancy that we are becoming accustomed to think of hepatic lesions as belonging to that condition, as evidenced by our chairman's use of the term "liver diseases of pregnancy" in a paper of recent date.[14] If the liver fails in its office as a toxin filter of the pathologic bacteria referable to mother, fetus, or placenta, these may furnish the infection necessary for the production of cholecystitis or cholelithiasis as a primary lesion, or for its exacerbation if it is present in a latent condition. There is no well-recognized line of demarcation between normal and pathologic pregnancy; anything that may cause hepatic lesions in the one may also cause them in the other; consequently, pressure from tumors, ascites, and other pathologic conditions, as well as pressure from the gravid uterus in normal pregnancy, may act to cause stagnation of bile with its sequelæ of infectious agents and their resultant lesions in the biliary tracts.

11. Goldsborough and Ainley: THE JOURNAL A. M. A., Dec. 10, 1910.
12. Gombault, Naunyn, and Sherrington: Referred to by Windsor, Quart. Jour. Med., Oxford, 1911, iv. 113.
13. Crile: Graves' Disease, THE JOURNAL A. M. A., March 4, 1911, p. 638.
14. Wetherill: Obstetric, Septic and Anesthetic Toxemias, THE JOURNAL A. M. A., Aug. 20, 1908, p. 741.

HEART CORRELATION

Sometimes cardiovascular symptoms are manifested simultaneously with the gall-stone attack in pregnancy. This condition is always alarming, and not so very many years—or shall I say months—ago, it was looked on as non-compensating heart-disease, and by its presence furnished cause or excuse for the interruption of pregnancy, with the possible loss of both mother and child.

SYMPTOMS IN PREGNANCY

If cholelithiasis comes on during pregnancy, nausea and digestive disturbances may continue throughout the entire term; jaundice may occur or it may be entirely absent; jaundice at about the sixth month is not unusual, or it may appear as late as the ninth month and continue through parturition and the puerperium.

Pruritus is often a prominent symptom and a difficult one to relieve. Miscarriages are of frequent occurrence, and the prematurely born child may show signs of jaundice. Pain is often a misleading symptom.

Rolleston[15] reports a case of a woman who had never had jaundice at any other time, in whom jaundice appeared in four successive pregnancies at about the sixth month; this was accompanied by great itching. In this patient nausea continued throughout all four pregnancies. The first three infants died of jaundice.

Nason[16] reports a mother who after two normal pregnancies had a miscarriage; then followed a pregnancy with jaundice coming on in the latter part and extending through labor and the puerperium, with the loss of a jaundiced child; this was repeated in a fourth and fifth pregnancy; in the sixth and seventh pregnancies the mother was jaundiced about one month before delivery, but in each case the child was healthy. The eighth, ninth and tenth pregnancies were normal. Nason concludes from this case that there is a definite relationship between the jaundice in mother and the jaundice and ill health of the child, and that the condition was an infective one, the child being infected *in utero*.

TREATMENT

Opinions would no doubt differ as to the treatment of cholecystitis and cholelithiasis during pregnancy; all would doubtless agree that, when this lesion is known to exist, if there are no well-developed manifestations or exacerbations by which the activity of this lesion may be interpreted, as exerting a deleterious effect on pregnancy, the course to pursue would be to let well enough alone. And by medical means the milder symptoms may be met and the patient guided to a safe termination of the period of gestation.

But if there should be recurrence of severe pain referable to these hepatic lesions, or symptoms of gall-stones producing obstruction, or correlation of cardiovascular symptoms, no time should be lost in resorting to surgical measures.

Ochsner[17] says that gall-stones and severe infections of the biliary tract have come to be looked on as purely surgical conditions. Would this statement hold good should these occur primarily, or show exacerbations during pregnancy?

I hope that at the close of this paper one feature of the discussion will be the conditions under which operative measures are advisable or permissible, and to show the results of such operations, and that it is possible, even when cardiac symptoms are present to an alarming extent, to operate on the primary cause, gall-stones, and by their removal to carry the patient on to the end of her term and save both mother and child.

CASE REPORTS

CASE 1.—Miss L. H. M., aged 39, occupation housewife, gave a history of periodical attacks of gall-stones for six years. (Diagnosed as such.) During the four years following, the gall-stone lesion remained latent, with some indigestion and jaundice but no decided attacks. All at once there was a strong exacerbation of symptoms; several seizures in quick succession, nausea and vomiting, marked acidity in the intervals, constipation and loss of appetite; the nausea and vomiting with hyperchlorhydria extending throughout several months.

On studying carefully into this case, a diagnosis of pregnancy complicating cholelithiasis was reached, the exacerbation of the latent cholelithiasis acting as a detective in enabling me to make a correct diagnosis at about the fourth month of pregnancy.

Since the birth of the child, four years have elapsed, during which time the patient has had no severe attacks of gall-stones, although the jaundice still persists.

CASE 2.—Mrs. S. R., aged 28, occupation housewife. First child was 7 months old when the patient was seized with severe pains in the epigastrium; this pain was temporarily relieved by morphin; pain returned in two days and was then relieved by inhalation of chloroform. On examination of the feces 200 or more gall-stones were found. Seven months after this attack a second child was born. Since then this patient has had one pregnancy, the third child being born one and one-half years after the birth of the second, the period of gestation being normal throughout.

CASE 3.—Mrs. W. H., aged 52, no occupation, gave a history of twenty-five years of gastric disturbances, with periods of pain in the right side, accompanied by pain in the epigastrium often, appetite poor at times, ravenous at other times, constipation, complexion swarthy, conjunctivæ strongly tinged with yellow; eleven pregnancies and three miscarriages. Three infants, lost in about the sixth month of pregnancy, were jaundiced.

As the attacks of pain were so frequent in occurrence and as the eleven pregnancies and three miscarriages followed one another in such rapid succession, it had never occurred to the patient that there was any relation between them. Neither had it occurred to the attending physicians, for the case was not correctly diagnosed as gall-stone trouble until at the close of twenty-five or more years of the above symptomatology, when the trouble was finally diagnosed by the finding of gall-stones in the alvine discharges, with toxic jaundice present as a constant symptom. On carefully tracing back through this patient's history there seems to be satisfactory evidence that there was always an exacerbation of the hepatic lesion during her frequent pregnancies. The history of this case is an illustration of the fact that there is difficulty in making a positive diagnosis of cholelithiasis; but it also points to the gastric disturbances manifested by the presence of this lesion, as a constant feature in the symptomatology, which, if properly interpreted, might lead to a positive diagnosis. Further, it intimates at least that there is a close relation between cholelithiasis (and its probable antecedent) and pregnancy.

CASE 4.—Mrs. J. M., aged 36, housewife, gave a history of annual attacks of gastric disturbances, pain in epigastrium, nausea, loss of appetite, constipation, a gradual diminution in physical strength, and a general weak condition, rendering the patient unable to perform her regular duties.

There was at the time of examination a slight jaundice, conjunctivæ decidedly tinged, with "liver patches" on forehead. The initial attack came on six years ago when the first child was five months old; this attack continued for four or five weeks, one week of which the patient was confined to her bed. During the attack there were successive exacerbations

15. Rolleston: Jaundice in Four Successive Pregnancies, Brit. Med. Jour., April 9, 1910.
16. Nason: Relationship of Jaundice in Mother and Child, Brit. Med. Jour., April 9, 1910.
17 Ochsner and Percy: A New Clinical Surgery, Ed. 3, 1911, p. 610.

of pain, and a single large stone was found in the feces. These attacks have been repeated each year, and although they have varied somewhat in severity, yet the general symptomatology has been almost identical. Generally speaking, these attacks are becoming more severe and are lasting longer, ten weeks having elapsed at the time of making the report since the ushering in of the present attack. No gall-stones were observed by the patient since the initial attack, although in following back her history the patient tells of noticing in the last attack about "two dozen small brown objects the size of shot" in the feces; these were irregular in outline.

During these six years this patient had six pregnancies, the children all living and reported as being fairly well nourished but not rugged; in each instance the supply of mother's milk became insufficient at four or five months.

I have tabulated this history as follows: First child born Dec. 14, 1905; first attack, May, 1906. Second child born Dec. 16, 1906; second attack, May, 1907. Third child born Dec. 7, 1907; third attack, May, 1908. Fourth child born Nov. 22, 1908; fourth attack, March or April, 1909. Fifth child born Dec. 29, 1909; fifth attack, March or April, 1910. Sixth child born Jan. 11, 1911; sixth attack, March or May 14, 1911.

In the first, second and third attacks the patient was in the second and third months of pregnancy; in the fourth attack in the first month; in the fifth attack probably in the first few days of pregnancy. In each of these six pregnancies there was intense pruritus, which at times became almost unbearable.

CONCLUSIONS

From a study of this subject in general and from the special study of the cases submitted, the following conclusions may be drawn:

There is a close relation existing between cholecystitis and cholelithiasis and pregnancy.

Physiologic pregnancy furnishes sufficient predisposing cause for the production of these hepatic lesions in its disordered metabolism pending adjustment, changes in elimination of waste products, changes in the rate of elimination, mechanical pressure and in its psychic features.

Pathologic pregnancy, in addition to these factors, furnishes the pathogenic agent direct.

So-called physiologic jaundice in the new-born is an expression of the effort on the part of the liver to adjust itself to its new requirement, and should always be looked on as a serious condition; and when jaundice occurs in the new-born child, following jaundice in the mother, it is reasonable to conclude that this toxic condition was transmitted from the mother to the child *in utero*.

In all probability, much of the "dyspepsia of pregnancy" is from unrecognized hepatic lesions, and preferably those under discussion; at any rate, gastric disturbances in pregnancy, whether designated "morning sickness," "water-brash," "sour stomach," "nausea," or however they may be termed, should always be looked into further than the digestive tract itself and should not be regarded simply as concomitant features of a physiologic pregnancy.

104½ South Clinton Street.

ABSTRACT OF DISCUSSION

DR. PALMER FINDLEY, Omaha: I should like to ask Dr. Branson to explain why there are so commonly attacks of cholelithiasis in the early months of pregnancy and not in the later stages, and then again, why these attacks often recur in the early puerperium?

DR. L. H. BRANSON, Iowa City: I should say that in the early months of pregnancy there is this process of adjustment going on. The system in the later months is already in working order.

RUPTURED PUS-TUBE, A CAUSE OF DIFFUSE SEPTIC PERITONITIS

WITH REPORT OF TWO CASES

A. P. STONER, M.D.
DES MOINES, IA.

Spontaneous rupture of a pus-tube is a rare occurrence, and rupture followed by diffuse septic infection of the peritoneum is still less common. A small quantity of pus frequently escapes through the partially closed fimbriated extremity of an infected tube and may give rise suddenly to renewed pain, with rise of temperature, acceleration of the pulse, etc., but the inflammation remains localized within the pelvis, and the leak is promptly plastered over and securely sealed up with parts of the omentum, bowels, or some of the pelvic viscera. A few days of rest completes the repair process. When, however, a large quantity of infective material suddenly escapes from a distended tube, either through rupture of the wall of the sac proper, or, by the unfolding of the agglutinated fimbriated extremity of the tube, the peritoneum may be entirely unable to cope with it.

In an extensive research of the literature, Bonney[1] found but thirty-one authentic cases of diffuse peritonitis following rupture of a pyosalpinx, recorded up to 1909. Only fourteen, out of forty leading surgeons to whom he wrote concerning their experience with such cases, had ever seen the condition, and but nine of them had had cases of their own. Bonney had one case, which added to thirteen new cases which he collected, brought the number of reported cases up to forty-five in 1909.

Bovee[2] added eleven more cases, including one of his own. Lamouroux[3] has published data of seventy-seven cases, besides one of his own. In a majority of the cases reported, no assignable causes have been mentioned. In a few cases the following exciting causes have been given: (1) straining, (2) lifting, (3) traumatism inflicted during coitus, (4) the use of strong purgatives. In Bovee's case, the attack came on early in the morning during sexual intercourse. The patient experienced a sudden and severe pain at the time. She was first seen by Bovee three days afterward, and was operated on the following day. He reports the right Fallopian tube ruptured. She died fifty-four hours after operation; about seven days after the accident. C. M. Echols[4] reports two cases. In one, the rupture was caused by coitus. The patient experienced a sharp pain in the pelvic region immediately, and became nauseated. The other case was caused by an attempt of the patient to save herself from a fall. Both patients had Neisser infection, and both recovered after the removal of the ruptured tubes and securing of free drainage.

I wish to report two cases of diffuse septic peritonitis, following the sudden evacuation of pus from a pyosalpinx into the free abdominal cavity, which have occurred in my service, the histories of which follow:

CASE 1.—Miss T., a very intelligent and prepossessing traveling saleswoman, was seen by me about 2 p. m., June 5, at her hotel in this city. She complained of a very severe pain in the lower abdomen, which she said had come on very suddenly during the morning; no exciting cause being obtainable. Vaginal examination showed the uterus to be slightly enlarged and freely movable; cervix somewhat softened, tenderness throughout the pelvic region, more especially in the right side, but no mass could be outlined. There was a blood-tinged mucopurulent discharge from the uterus, and pus was easily

1. Bonney: Surg., Gynec. and Obst., November, 1909.
2. Bovee: Surg., Gynec. and Obst., April, 1910.
3. Lamouroux: Arch. gén. de chir., January, 1910, iv, No. 1.
4. Echols, C. M.: Surg., Gynec. and Obst., December, 1910.

expressed from the urethra. The patient grew rapidly worse, and was sent to the hospital at 8 p. m. of the same day. The temperature had risen from 99.5 F., at my first visit, to 102 F., when she was registered at the hospital. The pulse at this time was 120, and the vaginal discharge was distinctly bloody. Smears from the vaginal and urethral discharges showed gonococci in abundance. The patient's suffering was now so great that I was obliged to order morphin and atropin to allay the pain. She was more or less restless but slept at intervals during the night. The following morning she was resting better, but the temperature remained the same, and the pulse was 110. A blood-count at this time showed 18,000 leukocytes. During the night she passed a small clot of blood and particles of membrane which resembled decidua. She stoutly denied, however, any irregularity of the menses—the period was not due at this time—or any knowledge of pregnancy whatsoever. The cervix was much softened, and the evidence of pregnancy was so great that I decided to explore the uterine cavity for the removal of the product of conception if any were found. Accordingly, I had the patient etherized and explored the uterus with a sharp curet, but found it quite empty. She was returned to her bed at 2 o'clock and placed in the half-sitting posture. The following morning she consented to have the abdomen opened. The temperature was 103.6 F., pulse 120, and the expression indicated an extreme condition. A soap-suds enema was administered at 7 a. m., and at 8 a. m. the abdomen was opened, Drs. Minassian and Galloway assisting. When the peritoneum was opened, a thin flocculent pus welled up into the wound; it was found to permeate freely between the intestinal folds throughout the abdomen. Everywhere the intestines were injected and roughened; here and there they were plastered over with yellowish plaques of fibrinous deposits. Owing to the tension within the intestine, it was with some difficulty that the folds were packed off and a complete view of the pelvic adnexa obtained. The appendix was brought up and found to be normal. The right tube was next inspected, and at first sight appeared to be only slightly enlarged and thickened. A closer examination, however, revealed pus exuding from its distal extremity, the fimbria being deeply injected and partially folded on itself. The aperture into the tube readily admitted the little finger. The tube itself was flabby and contained about one-half dram of pus, which was easily expressed through the opening. Only a few recent adhesions were encountered. The left tube was apparently normal, as were both ovaries. The right one showed a recently ruptured Graafian follicle. The diseased tube was tied off close to the uterus and removed, and a large rubber drainage tube surrounded with a cigarette drain was secured with fine gut near the stump and brought out at the lower end of the incision and the wound closed. Much of the pus was wiped up with gauze sponges, but no irrigation was used. The operation consumed but a few minutes, and the patient was put to bed in a good condition and immediately surrounded with hot bottles. Proctoclysis was begun immediately and the Fowler position maintained as before the operation. The patient made an uninterrupted recovery and was dismissed from the hospital July 21, two weeks after operation. She left for her home in an adjoining state six days afterward. Examination of the pus from the abdomen showed the same specific infection as that obtained from the pus in the discharges from the urethra and uterus. The Fallopian tube evidently had become infected from pus in the uterine cavity. The fimbriated extremity, being the point of least resistance, gave way as the tube filled with pus. This doubtless occasioned the first sharp pains complained of prior to my first visit. The tube having been opened, doubtless there was more or less pus stripped out at each pelvic examination.

CASE 2.—Miss I., an accountant, aged 23, was seen by me in consultation about 4 p. m., October 6, about two hours after the onset of the attack. The patient had just returned from lunch and was at her desk, when without warning she was struck with the most excruciating pain in the pelvic region. A hack was called and she was taken to her home. I found her lying on a couch, in great agony from pain in the lower abdomen. There was a cold, clammy sweat, pulse 120, temperature 99 + F. An hypodermic injection of morphin and atropin was administered at once. The following history was obtained from the family physician, who is a skilled practitioner. The patient had contracted gonorrhea six months before; the uterus and tubes had become involved early in the process. Several attacks of localized pelvic peritonitis during this period had been experienced, and she had been confined to her home most of the time, having only recently taken the position she was filling at the time of her attack. She had, however, refused any operative measures. On examination, I found the abdominal muscles fixed and rigid, and there was extreme tenderness all over the abdomen. The uterus was larger than normal and fixed in the pelvis. Any attempt to move it created pain. To the right and behind the cervix a boggy mass about the size of a lemon could be felt. I made a diagnosis of ruptured pus-tube, and immediately advised her being sent to the hospital. The patient was propped up in the semi-sitting posture in the ambulance and taken to Mercy Hospital at once, and was placed in bed in the same position. She refused to submit to immediate operation, but consented on the following morning to have the abdomen opened. Accordingly, at 9 a. m., under ether anesthesia, assisted by Dr. J. M. Mendenhall, and in the presence of Drs. Minassian and Crowley, I opened the abdomen in the median line below the umbilicus, using no elevation of the pelvis during the operation. When the peritoneum was opened, a thin flaky pus welled up into the wound; this pus was found throughout the abdomen, freely bathing the intestinal coils. In the deeper pelvic pouches the pus was decidedly more creamy and thicker in consistency. The intestines, as in the previous case, were deeply injected, and patches of plastic fibrinous exudate were frequently noted. The omentum was adherent to the fundus of the uterus, bladder and broad ligament. The adhesions having been detached, a large tubo-ovarian abscess of the right side was brought into view. It showed a large gaping rent in its wall through which pus was easily expressed. The abscess was so fragile that it was torn into pieces in effecting its removal. The left tube was much enlarged, filled with pus, and bound down in a mass of adhesions. The left ovary was cystic, and was removed with the tube. The appendix was not observed during the operation. Time of operation, twenty-five minutes. A smear of the pus from the abdomen showed the gonococcus. The wound was closed around two large rubber drainage tubes, the ends of which reached into the respective pockets left by the removal of the pus sacs. The patient was returned to her room in good condition, the head of the bed being raised by placing the legs on dining chairs. Hot-water bottles and proctoclysis were ordered immediately. The convalescence was somewhat stormy; the pain was excruciating and required the use of morphin to control it. Catharsis was attempted early, and the bowels were moved by enema on the second day. The drainage tubes were removed on the fourth day. The temperature ranged between 99 and 102 F. until the seventh day, when it advanced to 103 F., and there was renewed pain in the right side. Vaginal examination revealed an accumulation to the right of the cervix. Under ether anesthesia a vaginal incision was made, and a large quantity of pus evacuated. Iodoform gauze was packed into the cavity; it being renewed daily until the discharge was reduced to a minimum. The patient now began to improve rapidly, and was discharged from the hospital October 26, nineteen days after operation.

I regret that cultures were not made of the pus from the abdomen in these cases. It leaves one to conjecture whether other pathogenic germs did not play a part in the infection. At the time the cases were under observation, I was not aware that cases of diffuse peritonitis from such a source were so rare; therefore, the importance of a full examination did not occur to me. It is well known that the soil furnished by the peritoneum is inimical to the growth of the gonococcus. Many observers believe infection of the general peritoneum, from the gonococcus alone, to be impossible. Gonococci thrive and multiply almost exclusively on membranes which are covered with cylindrical epithelium, namely,

the urethra, endometrium, the lining of the Fallopian tubes, Bartholin's glands and conjunctiva, their active life even here being comparatively short. Gonorrhea usually runs its course in a few weeks' time, regardless of the kind of treatment given. Purulent accumulations become sterile, active discharges cease, and whatever line of treatment may have been pursued in a given case is given credit for the cure which the system's defensive products have accomplished. Exceptionally, however, cases are observed in which the organisms maintain a pronounced virulency when cultured on a new soil, after months or even years of dormant life. From the character of the adhesions in Case 2, the process must have been of long standing. The pus in both tubes appeared to be old, being without appreciable odor. Case 1 was evidently a recent infection, as was shown by the adnexa being normal in contour, but slightly enlarged, and thickened, and the adhesions being light and easily broken up.

From a clinical standpoint, no distinction should be made between leakage on account of incompetent closure of the fimbriated extremity of the tube and that of rupture of the wall proper of the tube. In each case, rupture comes from the constantly increasing pressure from within, which may be supplemented by other forces from without. As shown in my case, the symptoms in the former may appear more slowly, and be more difficult to interpret. The treatment of a case of ruptured pyosalpinx is the same as that for acute diffuse septic peritonitis from any other source. It may be concisely summed up as follows:

1. Put patients with suspected cases in the semi-sitting posture at once, keeping them in such position until operation. This will tend to limit the infection to the pelvic region, where absorption of the septic products is the least active.
2. Open the abdomen as early as possible; wipe up with gauze pads the accumulation of pus within the abdomen.
3. Find and completely remove the abscess.
4. Secure free drainage.
5. Maintain the Fowler position and start proctoclysis at once.

Therapeutics

ANESTHESIA AND ANESTHETICS

(Continued from page 1617)

CAUSE OF DEATH IN ETHERIZATION

There has been extensive discussion in regard to the occasional deaths which occur during anesthetization. It was formerly taught that death occurred during etherization from paralysis of the respiration; during the administration of chloroform from paralysis of the heart. Later observations and studies seem to show that the cause of death during the administration of ether may be due to paralysis of the heart as well as to paralysis of the respiration, and that in deaths from chloroform the respiration may cease before the heart fails.

It has seemed that a not infrequent cause of these deaths is a condition which has been designated as "status lymphaticus." In this condition there exists an enlargement of the various glandular structures of the body, and often a persistence of the thymus gland. This condition of enlargement of the thymus gland is associated with enlargement of the spleen, enlargement of the glands of the neck as well as of those of the abdomen, enlargement of the follicles at the base of the tongue and in the pharynx, hypertrophied tonsils and adenoids. These various enlargements are often accompanied by a dilated heart and by extreme flaccidity of the heart muscle. In some cases the heart has been found small and the aorta contracted. Other less constant features which may be present are great pallor of the skin, enlargement of the tongue and sometimes enlargement of the thyroid gland.

Among the conditions sometimes associated with status lymphaticus are infantilism, exophthalmic goiter, epilepsy and rickets.

When death occurs associated with this condition, there is usually a sudden failure of the heart and respiration, often before anesthesia is complete and often when the anesthesia is not deep.

Prof. Yandell Henderson ("Primary Heart Failure in Normal Subjects Under Ether," *Surg., Gynec. and Obst.*, August, 1911, p. 161) recalls that the deaths under anesthesia have been usually attributed either to unrecognized heart disease and hypersusceptibility to anesthesia, or to status lymphaticus. He believes that this explanation of these deaths is incorrect and misleading. He attributes them to the condition of so-called "acapnia." He illustrates this condition by saying that "anyone can do the crucial experiment demonstrating this at any time. Force yourself to breathe much more deeply and a little more rapidly than usual for a few seconds or minutes; and when you cease forcing your respiration you will, for a time, stop breathing altogether, or else breathe only occasionally or in a very shallow manner." This phenomenon he explains by saying that it is due to the absence in the blood of carbon dioxid which has been removed from the blood by the rapid breathing, and which is generally recognized by physiologists as being the normal stimulus to the respiratory center. This condition of diminished carbon dioxid in the blood is called "acapnia." He believes that deaths are far more likely to occur during the anesthesia when the patient has struggled violently against it, or when preceding the anesthesia, either on account of nervousness and apprehension, or on account of pain, the patient has breathed more deeply than usual, thus diminishing the amount of carbon dioxid in the blood and producing acapnia.

Anesthetics affect very positively the susceptibility to stimulation of the various organs, especially those of respiration and circulation. During light or intermittent ether anesthesia the susceptibility of the respiratory center to stimulation by carbon dioxid is increased; during full anesthesia it is about normal; but during deep anesthesia the susceptibility to such stimulation is diminished. If, therefore, during the commencement of anesthesia the patient struggles, consequently breathing more deeply, the carbon dioxid in the blood is diminished, so that when deep anesthesia is produced there is likely to be a quick paralysis of the respiration, or of the circulation. The same thing occurs if the patient is allowed to come partially out of the influence of the anesthetic.

It is impossible to predict, in these cases, whether the respiration or the circulation will be the first to suffer, for in some cases one, and in some cases the other, will feel the effect of the large dose of the anesthetic.

It has been generally believed that the presence of the so-called status lymphaticus was the cause of the rather unusually large proportion of cases of death during anesthetization which occurred in the course of operations for the removal of tonsils and adenoids.

Henderson explains these deaths by saying that they are due, not to status lymphaticus, but to the acapnia which accompanies the deep respiratory efforts incidental to the intermittency of anesthetization which generally prevails in these cases, to the light etherization at the commencement of the administration, to nervousness or pain preceding the etherization, or to the fact that the operation is sometimes commenced before the patient has been fully anesthetized.

These two theories offered in explanation of death during the administration of ether and chloroform should certainly put the surgeon and the anesthetist on their guard in two ways. The anesthetist should examine the patient before operation with reference to the presence of enlarged lymphatic nodes and glands in the various parts of the body, and when abnormal conditions of these are found, he should use greater care in regard to the use of an anesthetic. He should, furthermore, in giving the anesthetic use great care to have the patient inhale it without unnecessary excitement, should endeavor to avoid having him antagonize its administration by struggles and resistance, and should endeavor to get him fully under the influence of the anesthetic as quickly as is reasonably possible, should not allow him to come partially out from the influence of the anesthetic, but should maintain him under full, but not too deep, anesthesia until the anesthetic may be entirely withdrawn.

THE TREATMENT OF SUSPENDED RESPIRATION DURING ETHERIZATION

During the administration of ether the most common, and therefore the most important danger to the patient is suspension of respiration. While cases of sudden death during etherization have been reported in which the action of the heart ceased before the respiration or simultaneously with it, it is at present generally believed that ether acts more intensely on the center of respiration, and that paralysis of respiration causes death more frequently than paralysis of the heart.

It cannot be too frequently insisted on that the anesthetist should give his entire, undivided attention to the work which he is doing. This implies that he should be constantly watching the respiration in order to detect the first symptoms of any failure of that function. Every expiration of the patient should be either heard or felt by the anesthetist. To rely on hearing or feeling the respiration is preferable to watching the rise and fall of the chest or of the abdomen, for it is said that these motions may continue even when the passage of air through the larynx has ceased. A dusky appearance of the lips and ears is also an evidence that respiration is becoming embarrassed, and it should not be disregarded. When the depth and rapidity of respiration changes so that the breathing becomes very rapid and shallow, the anesthetist should be on the alert lest it cease entirely. Often an abnormal rate or depth of respiration is preceded by a single deep inspiration.

While it is the duty of the anesthetist to keep the patient so far under the influence of the anesthetic that the patient will not move any muscle during the operation, at the same time it must be remembered that ether should not be pushed beyond this point. The corneal reflex is a most acute test of complete etherization. It is generally the last reflex to disappear before the centers of respiration and circulation become affected. While the cornea should not often be touched with the finger on account of the danger of injury or of infection, if respiration is much disturbed and the anesthetist is uncertain whether paralysis is beginning or whether the respiration is slowed from insufficient anesthesia, which can be a cause for sudden disturbed respiration, he may, with care, gently touch the cornea to note the presence or absence of the palpable reflex. If the reflex is absent and the pupil does not contract with light, the stage of central paralysis is generally developing.

Even when most carefully watched, the stoppage of the respiration is apt to come suddenly. Prompt and immediate action on the part of the anesthetist is urgently demanded. The ether cone should be at once removed, and the tongue should be seized with forceps and drawn forward. If the throat is filled with mucus, it should be gently wiped out with a piece of gauze or sponge held in forceps. Forcible expiration should be induced regularly by pressing on the epigastrium and the lower ribs on each side. The vapor of ammonia may be placed carefully under the nostrils in the hope of exciting the respiration by the reflex irritation of the nasal mucous membrane. Rhythmical pulling of the tongue forward at intervals of four or five seconds for ten or twelve times may start respiration. Alio raising of the feet and legs, or the Trendelenburg position, especially if the pulse is failing, may start respiration.

If the patient does not begin within a minute to respire, artificial respiration should at once be started, either by the method of Sylvester, or by any other reliable method. This subject of artificial respiration was treated at considerable length in THE JOURNAL (Sept. 23 and 30, 1911, pp. 1056 and 1132). The movements of artificial respiration should be kept up at regular intervals of four or five seconds until natural respiration has been resumed, or for fifteen minutes after the heart has ceased to beat.

Professor Henderson has so thoroughly proved the inadvisability of inhalations of oxygen from an oxygen tank, that such inhalations should not be given. On the other hand, every hospital operating-room should probably be supplied with a mixture of oxygen and carbonic acid gas as advised by Henderson. Where such a tank is not at hand, an ordinary siphon of carbonated water may be substituted, as so plainly described and recommended by Dr. William Ewart (*Brit. Med. Jour.*, Oct. 7, 1911, p. 805). This method is so simple and the apparatus so cheap to prepare that it would seem that even in a private house the operating-room should contain the apparatus and the patient thus be safeguarded against sudden respiratory failure.

Briefly, Ewart takes two ordinary siphons charged with carbon dioxid gas (one will generally be found sufficient), and with two water bottles properly connected, passes the gas into one and allows the liquid almost entirely to go over into the other. When the second bottle is raised, the water, propelled by siphonage, passes back to the first bottle and forces the carbon dioxid gas, properly mixed with air, into the tube for inhalation by the patient. Reference to Ewart's diagrams and his description will render the method and apparatus perfectly plain.

The only hypodermatic injection that seems advisable in failure of the respiration is that of atropin, and even this may not be absorbed. Of course, it can be of no value for the immediate respiratory failure, but it could be of value if the anesthetic must be continued, to aid in preventing another respiratory failure. Injections of cocain, nitroglycerin and brandy are of doubtful value in respiratory failure. Camphor and caffein injections may have slight value.

(To be continued)

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[*For other information see second page following reading matter*]

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THE CULTIVATION OF THE SPIROCHÆTA PALLIDA

During the past decade remarkable advances have been made in the placing of the pathology of syphilis on a sound basis. In 1903, Metchnikoff and Roux first demonstrated the experimental production of the disease by animal inoculation; two years later Schaudinn and Hoffmann announced the discovery of the *Spirochæta pallida,* since conceded to be the etiologic agent of the disease; and in 1906 Wassermann, Neisser and Bruck published the method of serum diagnosis with which we associate their names.

Schaudinn and Hoffmann gave excellent descriptions of the morphology of the *Spirochæta pallida* and detailed methods of demonstrating the organism in the secretions and in the tissues of syphilitic lesions. Many observers confirmed their observations, but, until this year all attempts to isolate the organism in pure culture, and to determine whether it fulfilled the requirements of Koch's postulates have been unsuccessful.

Schereschewsky[1] was the first to succeed in obtaining cultures of the spirochete. He placed fragments of syphilitic material in tubes of horse-serum solidified by prolonged heating at 60 C., and incubated at 37 under anaerobic conditions. But his success was infrequent, and contaminating organisms were numerous.

In 1910 Mühlens, using a modification of Schereschewsky's medium, obtained a pure culture, as also did Hoffmann in February of this year. The latter, however, did not succeed in producing syphilis in animals with artificially cultivated spirochetes until about a month ago, when he caused a syphilitic dermatitis in rabbits by infecting them with his cultures.

Meanwhile, Noguchi[2] has devised a method of isolating the *Spirochæta pallida* in pure culture and has established the identity of the organisms isolated as the true *Spirochæta pallida* by animal inoculations. Unlike previous investigators, he did not use syphilitic material obtained from man as a constituent of his medium, but employed the testicular tissue of rabbits which had been infected with human material. This method offers two main advantages—first, the ease with which large quantities of tissue containing numerous spirochetes may be obtained at any time; and second, the fact that the tissue is relatively free from contaminating bacteria, especially after passage through several rabbits.

The medium which Noguchi advocates is a "serum water" (sheep, horse or rabbit serum 1 part, distilled water 3 parts), to which a piece of sterile tissue is added; after sterilization this is covered with a thick layer of paraffin oil. The essentials for obtaining the first generation of the *Spirochæta pallida* are: (1) suitable fresh tissue in "serum water"; (2) a slightly alkaline reaction; (3) strictly anaerobic conditions; and (4) a temperature of 35 to 37 C.

Observing the enumerated conditions, Noguchi has grown six strains of the organism and succeeded in growing subcultures of one strain to the twenty-fifth generation. To obtain the spirochetes in pure culture he "grew them through a Berkefeld filter."

With two of the strains isolated he has succeeded in producing typical testicular lesions in rabbits; and Sowade[3] still later has reported positive results in five rabbits which developed constitutional syphilis. With the Blumenthal technic he obtained a positive reaction in several of the syphilitic animals, while the test was always negative in the controls.

Final proof is thus at hand that the *Spirochæta pallida* is the true causative agent of syphilis, and the near future may perhaps give us still better bed-side tests for diagnosis and a more rational specific therapy than we now have.

1. Schereschewsky, J.: Deutsch. med. Wchnschr., 1909, xxxv, 835.
2. Noguchi, H.: Jour. Exper. Med., 1911, xiv, 99.

MAL DES AVIATEURS—AVIATOR'S DISEASE

Almost every occupation has its neurosis, and every new sport adds one to the long list. Thus we have become familiar with the "golfer's wrist," the "tennis elbow," and the "baseball arm" side by side with "writer's cramp." Trades have their dangers and develop new types of disease. The air induces pathologic as well as physiologic effects. Disturbances in physiologic balance experienced at altitudes were described by DaCosta under the name of *mal des montagnes* in the fifteenth century; and the dangers of changes in atmospheric pressure were made memorable by the eventful and fatal balloon ascension of Tissandier and his comrades from Paris in 1875.

The latest accession to the galaxy of maladies is the *mal des aviateurs.* With aviation meets as a daily occurrence, with transcontinental flight now an accomplished feat, and the aeroplane in actual operation as an "engine of war," it is not surprising that the medical aspects of this new vocation should invite the attention

3. Sowade, H.: Deutsch. med. Wchnschr., 1911, xxxvii, 1934.

of the scientist. Professors Cruchet and Moulinier[1] of Bordeaux, have recorded the observations which they made at one of the large French meets. They point out that an aeroplane flight calls for a continuous effort, both physical and intellectual, under conditions to which the human organism is not primarily adjusted. An ascent to an altitude of nine thousand feet is accomplished in thirty to forty minutes and succeeded by a return to earth within five to seven minutes. To these speedy ascents and almost dazzling descents, forming the peculiar mechanical features of certain types of flight, are added the rapid changes in barometric pressure, the attendant modifications in the composition of the atmosphere, and the sudden alterations in temperature (from 68 F. on the ground to 42 F. at nine thousand feet)—a combination of factors including those to which all workers at high altitudes may be exposed.

The data collected are, as yet, too scanty to permit of any elaborate discussion. Certain symptoms are of particular interest. During the ascents, shortness of breath may be experienced at relatively low altitudes, accompanied by some acceleration of the pulse. The attendant malaise is not characterized, as a rule, by the intense nausea noticed in mountain climbing; there may be a mild buzzing in the ears, but vertigo has not been reported. Frontal headaches are liable to arise at the altitude of about 4,500 feet. The sensation of cold becomes intense and the desire to urinate is acute. Irregularities in the voluntary muscular movements or reflex activities are also reported—perhaps the expression of the combined effects of cold, accelerated heart-beat, nervous tension, fatigue and other factors.

Descent is usually too rapid to allow an accurate analysis of the sequence of physiologic events. On landing there is an intense sensation of warmth over the surface of the body; the face is flushed; the eyes "sting." Headache is accompanied by an almost invincible desire to sleep. Increased blood-pressure is quite characteristic on landing from high flights, while severe tachycardia may attend fatiguing exhibitions.

As in the case of mountain-climbing, the altitude at which different individuals are attacked with malaise varies widely. Cruchet and Moulinier point out the vasomotor disturbances, hypertension, headache and drowsiness, especially after landing, as characteristics of the *mal des aviateurs*. They add that probably the extreme rapidity with which the aviator travels through a changing atmospheric environment contributes distress and even danger to variations in atmospheric pressure which divers, for example, would regard as relatively slight. Some of the symptoms noted in caisson workers find a counterpart in those reported by aviators.

1. Cruchet and Moulinier: Le mal des aviateurs, Jour. de physiol. et pathol. gén., 1911, xiii, 387.

THE FACTORS CONCERNED IN MILK SECRETION

The apparently inexplicable variations in functional activity on the part of the mammary glands are among the perplexing problems which beset the physician and physiologist alike. The period is not remote when it was customary to charge the nervous system with every regulatory office of this type. Since Goltz and his pupils demonstrated that normal pregnancy and lactation are still possible after exclusion of the spinal nervous mechanism, and since the possibility of transplanting the mammary glands without complete interruption of their secretory function has been asserted, the dominance of the nervous system in the phenomena of lactation has begun to be questioned.[1]

What sort of stimulus awakens the mammary gland to activity, if the integrity of the nervous system is not a necessary condition? One naturally thinks of those chemical excitants which, under the designation "hormones," are now called on to explain various secretory functions. Secretin, formed in the duodenal mucosa, is carried by the circulation to the pancreas and liver, and occasions an outpouring of the secretions of these glandular organs; or, again, the secretory activities of the kidney can be incited by material derived from the posterior or infundibular portion of the pituitary body. These are typical illustrations of the stimulation of glandular tissues by humoral paths. In searching for hormones which might be the cause of the growth of the mammary gland substance during pregnancy, Miss Lane-Claypon and Professor Starling[2] tested the effect of extracts of placenta, uterus and fetus on virgin animals, with positive results in the case of the rabbit-fetus injections. From their observations it would seem as if the developing fetus gives rise to some chemical substance which enters the maternal circulation and stimulates the dormant mammary glands. In the experiments of Biedl and Königstein[3] also, fetal extracts appeared to start the growth of the glands; but milk was not produced. It is not unlikely that the two phenomena, viz., growth of the mammary tissue and incitement of secretion, are more or less independent reactions with individual causes.

The search for a true galactagogue has received an impetus through further investigations showing that secretion of milk can be initiated independent of pregnancy. In the case of the Blazek sisters—twins living in parabiotic union—milk formed in the breasts of both individuals during the pregnancy of one of them. It must be assumed that the effective hormone was transmitted through humoral channels from the gravid to the non-pregnant sister.[4] The credit of the discovery

1. Basch: Die Innervation der Milchdrüse, Jahrb. f. Kinderh., 1906, lxiv, 795.
2. Lane-Claypon and Starling: Proc. Roy. Soc. London, Sec. B., 1906, lxxvii, 505.
3. Biedl and Königstein: Untersuchungen über d. Brustdrüsenhormon der Gravidität, Ztschr. f. exper. Pathol., 1910, viii, 358.
4. Basch: Ueber exper. Milchauslösung und Verhalten der Milchabsonderung bei den zusammengewachsenen Schwestern Blazek, Deutsch. med Wchnschr., 1910, xxxvi, 981.

of hormones which influence milk secretion belongs to the American investigators Drs. Isaac Ott and J. C. Scott.[5] In a study of the influence of extracts of various glands containing so-called internal secretions they found that a substance separated from the posterior part of the hypophysis rapidly and greatly increased the secretion of milk in goats. Corpus luteum, pineal body and thymus also increased the quantity of milk, although the infundibular product was the most powerful galactagogue. The ovary without the corpus luteum had no effect.

The galactagogue action of pituitary substance and extracts of corpus luteum has been confirmed by Schäfer and Mackenzie.[6] According to these Edinburgh investigators it is not even necessary to employ a lactating animal to demonstrate the galactagogue effects. In one instance they observed a free flow of (serous) fluid from the incised mamma of a virgin cat after injections of pituitary substance. Extracts of involuting uterine mucous membrane, and of mammary gland itself are markedly galactagogue. Drugs, such as pilocarpin, physostigmin and nicotin, which might have been expected to produce some effect on milk secretion, in view of their well-known effects on other glands, exerted no perceptible influence.

Aside from its interest in explanation of the impulse to milk production, this pioneer work is full of suggestive possibilities for the future. The commercial dairyman and the scientific therapeutist alike will watch the further progress of these researches with marked interest.

SO-CALLED BRILL'S DISEASE: AN ACUTE INFECTIOUS DISEASE OF UNKNOWN ORIGIN

In April, 1910, Brill described[7] what he termed "an acute infectious disease of unknown origin," the essential features of which are as follows: A rather sudden onset, accompanied by a chill, or a chilly sensation, followed by body pains, prostration, apathy and severe headache. There is fever which reaches a maximum on the third day, after which it usually maintains a fairly constant level around 103 to 104 F. On the fifth or sixth day, an eruption appears, which Brill considers characteristic, even pathognomonic, of the disease. The lesions are numerous, and consist of discrete maculopapules, 1 to 4 mm. in diameter; the eruption is erythematous in character, and petechiæ are not infrequently present. The distribution may be universal though the lesions are most commonly present on the trunk. The eruption does not appear in crops, but reaches its full efflorescence within twenty-four hours; it remains until defervescence, with which it rapidly disappears.

The disease has a duration of twelve to fourteen days, at the end of which time the fever usually falls by crisis, the headache and apathy rapidly disappear, and a rapid convalescence begins.

According to Brill, the disease, in spite of its many points of similarity to typhoid fever, is not a form of infection with the *Bacillus typhosus* or with any other of the so-called "dysentery group" of organisms. The nature of the rash, the defervescence by crisis, the absence of abdominal complications, the negative blood-cultures and agglutination tests, serve as aids in differential diagnosis.

The resemblance to typhus fever is more striking, and Brill regards the syndrome he describes as a mild abortive type of that disease. But though the skin manifestations in the two conditions are similar, and though there is a critical defervescence in both, there are many points of dissimilarity. Thus, in the syndrome described by Brill, there are no marked nervous symptoms and no history of contagion; there is a mortality of less than 1 per cent., and autumnal prevalence. Further, inoculation experiments, made with the blood and tissues of patients ill with this "infectious disease," have failed to produce the disease, whereas similar experiments in typhus fever, made by Nicolle and by Ricketts, have been successful. In spite of the fact that this experimental evidence seems to negative the identity of the two diseases, Brill believes[8] the syndrome described by him to be the result of infection with an attenuated modification of the virus of typhus fever.

The same opinion is held by Friedman,[9] who describes numerous cases of mild abortive typhus fever which he observed in Russia. These cases, like those described by Brill, had a mild course, were unattended by nervous symptoms, terminated in recovery, and, when occurring under hygienic conditions, were only slightly contagious.

THE CONSERVATION OF THE SOLAR ENERGY IN OUR FOOD-SUPPLY

It is only recently that we have heard warnings of the danger of an inadequate food-supply, but the problem seems to be a serious one and its solution may become more and more insistent. With the strenuous efforts made to conserve human life and with the rapid increase in population and the utilization of all available food sources, the question, according to H. P. Armsby,[10] resolves itself into the problem of the fixation of as much of the solar radiation as possible in the form of crops and also the utilization of the energy which the latter contain with the maximum of efficiency. But a small part of the solar energy stored up in the farmers' crops is directly available for man's use. Rejecting the straw and the bran, only about 30 per cent. of the

5. Ott and Scott: The Action of Infundibulin on the Mammary Secretion; the Galactagogue Action of the Thymus and Corpus Luteum, Proc. Soc. Exper. Biol. and Med., 1910, viii, 48.
6. Schäfer and Mackenzie: The Action of Animal Extracts on Milk Secretion, Proc. Roy. Soc. London, Sec. B., 1911, lxxxiv, 16.
7. Brill, N. E.: Am. Jour. Med. Sc., 1910, cxxxix, 484; abstr. in THE JOURNAL A. M. A., April 30, 1910, p. 1477.
8. Brill: Pathological and Experimental Data Derived from a Further Study of an Acute Infectious Disease of Unknown Etiology, Am. Jour. Med. Sc., 1911, cxlii, 196; abstr. in THE JOURNAL A. M. A., Aug. 19, 1911, p. 681.
9. Friedman, G. A.: Arch. Int. Med., October, 1911, iii, 427.
10. Armsby, H. P.: Pop. Sci. Month., November, 1911, p. 496.

energy stored in an acre of wheat is directly available for human nutrition, and much the same thing is true of other food crops. Our enormous supply of food-products has hitherto enabled us to disregard this fact and even to export much of our products or to make use of them in the production of meat. But Armsby believes that we are rapidly approaching the economic limit of production of meat from edible grains. Of solar energy stored up in a bushel of corn, only 3 per cent. is recovered in the edible portion of the steer to which it is fed, while in pork this percentage rises to scarcely more than 16, and in milk to 18. Of the solar energy stored in an acre of grain crops, therefore, only an insignificant fraction is recoverable in meat produced from animals fed on the grain. "In other words," says Armsby, "the stockman who feeds his animals on grain is expending energy available for human use as fuel for his animal machines for the sake of recovering a small fraction of it in higher-priced and more palatable products, a process which can hardly fail to remind one of the reputed origin of roast pig."

In the past, speaking broadly, meat production has consisted to a large extent in the exploitation of our food resources, but in the near future we shall have to reverse this attitude and study the conservation of the food-supply. "Not much longer can we continue to take the children's bread and cast it to the brutes." All the edible products which the farmers' acres can yield will be needed for human consumption and the problem will be to render available for human use those products, inedible by man until transmuted into meat, in which so large a share of solar energy is stored. Meat and other animal products will be produced, not as luxuries for the tables of the rich, which they seem to be becoming now, but as a means of conserving energy for human use. The stock-feeding of the future will be a highly artificial process dealing with food-stuffs unfamiliar at present and seeking to utilize to the utmost the energy of every available by-product.

Looking far ahead at the needs of the future in this respect, already experts in agriculture and in animal industries have been studying scientifically the most economical production of meat, and Armsby describes some experiments conducted in the Institute of Animal Nutrition in the Pennsylvania State College which seek in a way similar to the studies of Atwater and Chittenden on human beings to determine the chemical elements and energy of income and outgo per day in food animals. In these studies the respiration apparatus and the calorimeter have been made use of. The questions which the experimenters have endeavored to determine have been how the different feeding stuffs compare with each other as to their content of energy and the proportion available for the animal; the relative efficiency of different types of animals as converters of waste energy into human food; and how the various conditions under which the animals are kept affect their efficiency in this respect. Correct answers to these questions will afford a scientific basis for a rational system of conserving to the utmost the energy which the farmers have been taught by the soil expert, the chemist and the other scientists to accumulate in crops. The question of conservation of the food-supply is one of the most fundamentally important, at least equaling that of the conservative measures looking toward the preservation of mines, forests, water-supplies, etc.

Current Comment

THE PROFITS OF VACCINATION

According to a recent dispatch from Washington, members of state militias can be vaccinated against typhoid at a cost of 12½ cents per man. If the present claims regarding this method are correct, inoculation means immunity from typhoid, hence the more inoculations, the less typhoid. This being the case, if every person in the United States were inoculated, typhoid fever would disappear. The charge is often made by those who oppose sanitary measures, that physicians advocate vaccination on account of the "graft" there is in it. Let us suppose that typhoid vaccination should become universal, that every person in the United States were vaccinated, and that as a result typhoid fever disappeared. How would physicians gain? Let us see. In 1908 there were in the registration area 11,375 deaths from typhoid, or 25.3 per hundred thousand. Assuming that this ratio holds for the entire country, among the 91,109,447 inhabitants of the states, there would be about 23,050 deaths from typhoid. The mortality rate of typhoid varies from 12 to 20 per cent. One death out of every ten cases would be a conservative estimate. This would mean that there are about 230,000 cases of typhoid each year. If the average cost per case for medical services were $50, the total yearly income to the medical profession from typhoid fever would be $11,500,000, or $88.46 per year, for each of the 130,000 physicians in the United States. Now if each man, woman and child were inoculated against typhoid, and if such inoculation were repeated every ten years, and if typhoid disappeared, each physician would lose $88 per year, and the profession as a whole would be out $11,500,000 per year, or $115,000,000 in ten years. But—and here comes the "graft"—physicians would be paid for vaccinating the people! How much? If vaccination for typhoid became as common as vaccination for small-pox, and if physicians did as many free vaccinations as are now being done by school inspectors, health officers and others, they could not receive, on an average, more than 10 cents an individual for vaccination. Even if every man, woman and child were vaccinated, the income to physicians, from vaccinating 91,109,447 people every ten years would only be $9,110,944, or $911,094 each year. This would be an average of $7 per year for each physician. But he would lose $88.46, his present average income from typhoid, so that his net loss through the introduction of vaccination would be $81.46 per year, or $814 in ten

years, a total loss to the entire profession of $10,589,800 a year, or $105,898,000 every ten years. Is it any wonder that physicians are accused of graft when such glittering, get-rich-quick prospects are spread before them? This would only duplicate the experience of the medical profession in the one hundred years which have elapsed since Jenner's discovery. It is safe to say that had vaccination never been discovered, physicians would to-day be making $1,000 caring for small-pox patients, where they now make $1 for vaccinations. Yet the ignorant and the thoughtless still talk about the "graft" of vaccination.

A LEGITIMATE EXPRESSION

The treachery of type and the fallibility of the human mind and eye are dangers so ever-present in the consciousness of most editors that, when charged with an error, they are usually almost ready to plead guilty at once, without examination of the indictment. It is all the more a pleasure, therefore, to be able to "stand pat" once in a while. For example, a contemporary thinks that one of our contributors made "a somewhat extraordinary statement" in a recent article.[1] Our contemporary says: "Speaking of a certain type of patient, Dr. Ledbetter avers: 'They are credulous and more or less superstitious and easily imposed on, and are the *legitimate* prey of the unscrupulous.' The italics are our own idea." A bright little idea indeed—those italics—otherwise we might have missed the point. While we do not need to take up the cudgels on Dr. Ledbetter's behalf, a lively interest in the English tongue impels us to remark that the criticism needs a diagram, because the word is here used correctly. "Legitimate" is not limited in its application to the laws made by men; it refers also to natural law—in this case particularly to the laws of psychology. A better word than "legitimate," because more appropriate in this connection, would be "logical" or "natural," but "legitimate" is not incorrect. Our contemporary unintentionally does Dr. Ledbetter injustice, by the way, in saying that he was "speaking of a certain type of patient" when he said: "They are . . . easily imposed on." Dr. Ledbetter provided his plural pronoun with a plural antecedent; he spoke of "individuals of this type." Notwithstanding, we hereby return our best acknowledgments to our contemporary for the flattering evidence that our columns are carefully scanned, and for the effort toward our improvement.

THE MOTE AND THE BEAM

Scarcely a day passes but we receive one or more letters from physicians enclosing some "patent-medicine" advertisements taken from local newspapers and protesting against the disgusting prostitution of the daily press to the "patent-medicine" interests. Such letters are vibrant with indignation and filled with anathemas against the venality and sordidness of the American newspaper. While we fully agree with our correspondents' point of view, we are unable, in a majority of cases, to work ourselves into the same fine frenzy they exhibit. We know that, in too many instances, the writers of such letters are subscribing for, contributing to and in other ways lending their financial and moral influence toward the up-keep of medical journals whose advertising pages reek with frauds just as vicious as those that appear in the yellowest of yellow journals. Physicians who would no more think of violating the ethics of their profession than they would of breaking the law of the land, are supporting medical journals whose only interest in the profession is the money their owners can make out of it. The whole policy of such journals is dictated from the "business office." If medical ethics and advertising contracts clash, so much the worse for ethics. Such publications are *particeps criminis* with those that humbug the profession, and through the profession the public, and their editors salve their consciences with the advertising receipts. Just as long as journals of this kind are subscribed for or contributed to by reputable medical men, just so long will the proprietary evil flourish. The influence of the medical profession on the attitude of newspapers toward medical frauds will continue to be a negligible quantity just so long as the business managers of newspapers can retort that the medical profession itself is standing sponsor for just as big a "bunco game" as any newspaper that ever advertised Peruna or Lydia Pinkham! It is a fact, and one that should make every self-respecting physician blush, that the better class of lay magazines are more particular about the acceptance of advertisements than are the majority of medical journals supported by the profession. And the fault lies with the individual physician! The remedy is evident and as simple as evident: Physicians should not tolerate the presence of such publications in their offices.

CARNEGIE UNIVERSITY—A FRAUD

Elsewhere in this issue[1] some space is devoted to the description of an imposingly-named "school of drugless healing"—Carnegie University. This concern gives diplomas and grants degrees for a cash consideration; moreover, it will grant these degrees and diplomas to individuals even after they have given documentary proof of their unfitness to treat disease. For $50 the degree of "Doctor of Mechanotherapy" and an ornate "diploma" has been offered to one whose ignorance of physiology and anatomy was such that he could not distinguish between the portal circulation and gastric digestion, who did not know the difference between the fornix and the pharynx, and whose idea of histology was that it dealt with the history of anatomy and physiology. Think of it! In most of the states of the union, a man exhibiting this colossal ignorance of the human body is permitted to treat any disease that flesh is heir to—providing he does not use drugs. And almost the only ones who protest against such unchecked malpractice are physicians—who are at once accused of ulterior motives and charged with persecuting "competitors." As such schools exist only for the sale of worthless diplomas and worse than worthless "courses," so also the individuals patronizing them do so for one purpose and one purpose

1. Ledbetter, S. L.: Psychology of Refraction, THE JOURNAL A. M. A., Oct. 14, 1911, p. 1284.

1. Propaganda for Reform department, page 1710.

only—that of engaging in an easy and lucrative business. The dominant idea expressed throughout all the catalogues of the various "colleges" of "drugless healing" is the amount of money that can be made by following this trade. For trade it is and a disreputable one at that. These schools are attempting to influence state legislatures to grant them legal recognition. Such recognition once granted, the thousands of sordid ignoramuses who have purchased the degrees offered by these institutions are turned loose to work their will on the sick and the suffering. When will the granting of charters to such worthless and fraudulent institutions cease? The editor of London *Truth* once stated that it seemed easier to start a university in the United States than it was to start a grog-shop in Great Britain. And he might have added: "or in the United States, either." It remains to be seen whether the authorities of Delaware or New York will take action against Carnegie University or its "affiliated" humbug, the National Institute of Mechanotherapy. If the state authorities decide that they have no jurisdiction in the matter, it is to be hoped that the efficient but overworked fraud-order department of the United States Postoffice will take cognizance of this parchment factory.

Medical News

ILLINOIS

Certificate Revoked.—The State Board of Health announced at its meeting held in Chicago, October 25, that it had revoked the certificate of Dr. Haldane Cleminson, who is serving a life sentence in the state penitentiary at Joliet, for the murder of his wife..

Personal.—Dr. Simon S. Wilcox, an aged physician of Hutton, fell in his barn, November 3, fracturing two ribs.——Dr. John H. Rice, Clayton, leaves Quincy, December 1, for a trip around the world.——Dr. Hiram J. Smith of the medical staff of the Elgin State Hospital has been appointed assistant superintendent of the Watertown State Hospital.

Isolation Hospital Wanted for Evanston.—At the meeting of the Evanston branch of the Chicago Medical Society and physicians of Evanston and the North Shore, October 27, the forty-six physicians present pledged themselves to assist in the organization of a contagious disease hospital for the use of that territory, to be open to patients from all the north shore towns and as far north as the Cook County line. Drs. Stephen V. Balderston, Evanston; Alice Brown, Winnetka; Rufus B. Stolp, Kenilworth, and George W. Haskins, Wilmette, were appointed temporary officers of the Contagious Disease Hospital Association, and were directed to formulate plans for a permanent organization.

Chicago

Increase in Communicable Diseases.—The *Bulletin of the Department of Health* for this week speaks of the unnecessary deaths from diphtheria in Chicago. During the week ended November 12, there were twenty-one deaths from this cause, and in the previous week twenty-five deaths. The department calls attention to the fact that there is not likely to be a decrease in the mortality from this cause so long as parents persist in neglecting sore throats in their children, and physicians are lax in reporting cases and delay the administration of antitoxin. In view of the fact that the state is now furnishing antitoxin free for those who are unable to pay for it, no child need die from this cause for lack of proper treatment. There are at present thirty-four state free antitoxin stations in Chicago.

INDIANA

District Society Meeting.—At the annual meeting of the Eleventh Indiana District Medical Association, held in Wabash, October 20, Dr. Lorin W. Smith, Wabash, was elected president; Dr. James L. Gilbert, Logansport, secretary-treasurer, and Dr. Godlove G. Eckhardt, Marion, councilor.

Hospital Notes.—At a meeting of the trustees of Indiana University, held in Indianapolis, November 4, a resolution was adopted that the Robert W. Long Memorial Hospital be erected in Military Park, Indianapolis.——Brazil has received funds for a $50,000 hospital; the city is to furnish the site and the building will be erected by Clay County.

Personal.—Dr. John P. Ramsay has been appointed medical director of the Good Samaritan Hospital, Vincennes.——Dr. David Cohen has succeeded Dr. George W. Twomey as a member of the board of health of Jeffersonville.——Dr. Ryan T. Van Pelt, South Bend, who has been seriously ill with septicemia, due to an infected finger, is reported to be improving.

KENTUCKY

Personal.—Dr. Martin W. Steele, Corbin, and not Dr. James R. Steele, as announced in THE JOURNAL of November 4, was elected third vice-president of the Kentucky State Medical Association.

Buildings for Incurable Tuberculosis Patients.—The new City Hospital of Louisville has appropriated $25,000 out of the $1,000,000 bond issue recently authorized, for the erection of buildings for the care of incurable patients at the Waverly Hills Sanatorium.

Loses Suit Against County Medical Society.—Dr. Benjamin L. Bradley, Paducah, secured a temporary injunction to prevent the McCracken County Medical Society from expelling him for "ungentlemanly and unprofessional conduct," the alleged conduct being that he had signed with other members of the society a general agreement regarding telephone service and had failed to keep it; the case was then brought up in the circuit court and the injunction dissolved. Later, Dr. Bradley took an appeal to the appellate court, and lost, so the injunction against the society was finally dissolved.

State Board Affairs.—At a recent meeting of the State Board of Health, Prof. E. H. Mark, formerly superintendent of the Louisville Public Schools was appointed state sanitary engineer and chemist. This was decided on the acceptance of the resignation of former State Engineer and Chemist Paul Hansen. It is expected that Prof. Mark will enter on his duties about Jan. 1, 1912.——A communication was received by the board from the Louisville Association for the Study and Prevention of Tuberculosis requesting that the board pass an ordinance prohibiting the use of public drinking-cups. The board expressed its willingness to act favorably on the request made by the association provided the present law compelling railroads to furnish drinking-cups on trains is repealed. The board indorsed a series of bills prepared by the State Association for the Study and Prevention of Tuberculosis which are intended to provide for a State Tuberculosis Sanatorium and for state aid for any county establishing a sanatorium within its limits.——According to statistics furnished by the secretary there are 20,000 cases of tuberculosis in Kentucky, 6,000 persons having died from tuberculosis in the state during the past year.——The report from the committee appointed at the last meeting to inspect the equipment and teaching methods in the Medical Department of the University of Louisville, reported that they found everything in excellent condition.——It was decided that examinations for applicants for licenses to practice medicine will be held at the Armory in Louisville, December 19, 20 and 21.

MARYLAND

Baltimore

Personal.—Dr. Johannes K. Peltekian sailed for Armenia, November 9.——Dr. Charles H. Meddars sustained painful injuries in an automobile accident, November 7.——Dr. Christian Deetjen was again operated on last week, having the last two phalanges of the right forefinger amputated on account of *x*-ray burns.——Dr. Aubrey F. Lawson, intern at Mercy Hospital, has resigned to take up practice at Wildell, W. Va. ——Dr. George Hauer Everhart has returned from Europe. ——Dr. Paul Titus was operated on in St. John's Hospital, November 6, and is said to be doing well.

MASSACHUSETTS

Hospital Notes.—The New England Hospital for Women and Children, Boston, has received as a gift from Miss Alice Stone Blackwell her home in Boutwell Avenue, Dorchester, and will use it as a convalescent home.——The Boston City Hospital Department has raised the salaries of several members of the resident staff.——The Robert Dawson Evans Memorial Hospital, which is to be devoted to clinical research and preventive medicine, is approaching completion. The institution, when finished, will have cost about $125,000.

Tuberculosis in Boston.—The chairman of the trustees of Boston Consumptives' Hospital reports that during the last year 1,573 patients were received at the Day Camp; 10,099 were examined in the out-patient department and 40,000 home visits were made by the doctors and nurses connected with the institution. During the last five years the number of beds available for advanced cases of tuberculosis in Boston, has been increased 366 per cent. At the hospitals in Mattepan 1,124 bed patients have already been treated.

MICHIGAN

Addition to Sanatorium.—Through the efforts of Mrs. John T. Brodhead, Detroit, an addition to the Detroit Tuberculosis Sanatorium has been provided, which contains five rooms with all necessary conveniences for advanced cases of tuberculosis. Plans are said to be under way for another addition to the institution.

New Officers for Society.—At the annual meeting of the Michigan Society for the Prevention and Relief of Tuberculosis, held in Ann Arbor last week, the following officers were elected: president, Dr. Collins H. Johnston, Grand Rapids; vice-presidents, Drs. Guy L. Kiefer, Detroit, and Robert B. Harkness, Houghton; secretary, Miss Carol Walton, Ann Arbor; treasurer, Dr. Henry J. Hartz, Detroit, and directors, Mrs. Caroline Bartlett Crane, Kalamazoo, Dr. Ralph C. Apted, Grand Rapids, Mrs. B. C. Whitney, Detroit, Dr. Victor C. Vaughan, Ann Arbor, Dr. Russell L. Dixon, Grand Rapids, Mrs. Elnore Chamberlain, Hartford, and Mrs. Huntley Russell, Grand Rapids.

NEW YORK

Personal.—Dr. Willis W. Waite, city bacteriologist of Syracuse, has resigned to accept the directorship of Dr. Hugh W. Crouse's clinical laboratory, El Paso, Tex.——Dr. and Mrs. Charles Barber Willis, Huntington, celebrated the fiftieth anniversary of their marriage, October 31.

District Society Meetings.—At the fifth annual meeting of the Seventh District Branch of the Medical Society of the State of New York, held in Rochester, October 19, Corning was named as the next place of meeting. Dr. Herbert B. Smith, Corning, was elected president; Dr. Willard D. Becker, Rochester, vice-president, and Dr. John F. Myers, Sodus, and Dr. Homer J. Knickerbocker, Geneva, were reelected secretary and treasurer, respectively.——The Medical Association of Central New York held its annual meeting in Rochester, October 19, electing Dr. William D. Johnson, Batavia, president; Dr. Louis F. O'Neill, Auburn, vice-president, and reelecting Dr. John J. Buettner, Syracuse, secretary, and Dr. Charles O. Boswell, Rochester, treasurer.

State Sanitary Officers' Meeting.—The New York State Sanitary Officers' Association, made up of the 1,400 health officers of the state, held its third annual meeting in New York City, October 24, 100 members being present. The following officers were elected: president, Dr. Frank Overton, Patchogue; vice-presidents, Drs. Louis M. Brown, Purdy's Station; Louis B. Couch, Nyack, and Orlando J. Hallenback, Canandaigua; secretary, Dr. Montgomery E. Leary, Rochester, and treasurer, Dr. William Stanton, Webster. The association decided to undertake the revision of the sanitary laws of the state with the cooperation of the State Department of Health, and a legislative committee consisting of the president and secretary and five members is to be appointed to take up this task. The sanitary codes of various states will have to be studied and the best points in each adopted, so that the new sanitary code may be as nearly ideal as possible.

New York City

Personal.—Dr. Peter Hughes, surgeon and chief of St. Catherine's Hospital, Brooklyn, was operated on November 1, in New York City, for the removal of a stone from the kidney, and is reported to be progressing favorably toward recovery.——Dr. Simon Flexner of the Rockefeller Institute for research, has been appointed by the Emperor of Germany an honorary member of the Royal Institute for Experimental Therapeutics, Frankfort-on-the-Main.

Montefiore Home.—The directors of this institution held their twenty-seventh annual meeting, November 4, when it was announced that the new buildings of the home, which have cost about $1,500,000, will be completed in about eighteen months. There will be accommodations for 480 patients. During the past year the New York home and the country sanatorium together have cared for 1,109 patients. Mr. and Mrs. Mortimer L. Schiff have given $25,000 toward the building fund, and George Sidenburg has given $25,000 for an operating room.

Harvey Lecture.—The fifth lecture of the seventh course of Harvey Society Lectures will be given at the New York Academy of Medicine, November 25, at 8:30. Prof. W. T. Sedgwick, of the Massachusetts Institute of Technology, will speak on "Illuminating Gas and the Public Health."

Health Department Takes over Milk Station.—The commissioner of health announces that on November 1, the department of health resumed charge of twenty-two of the infants' milk stations formerly conducted by the New York Milk Committee in the Borough of Manhattan. The committee had publicly announced its intention of discontinuing these stations.

Health Department and the Strikers.—Dr. Lederle announces that the health department will not interfere with the strike among the garbage collectors and street cleaners at present. Should the strike be protracted, however, the health department has the power to let contracts for the removal of garbage. Dr. Lederle is of the opinion that no particular danger can result from the garbage piling up for three or four days so long as the weather remains cool.

NORTH DAKOTA

Personal.—Dr. Ulrich F. Bush, Fargo, has returned from Europe.——Dr. Gustave F. Ruediger, Grand Forks, has been reappointed city milk inspector.

Fire in Hospital.—A fire in the Jamestown City Hospital, October 28, necessitated the removal of all patients from the institution. This was accomplished without serious injury to the patients, and a temporary hospital has been established in the neighboring residences.

Sanatorium Contract Let.—At a recent meeting of the board of trustees of the North Dakota Tuberculosis Sanatorium, Dunseith, the contract for the administration building was let for about $20,000. The foundation of the building will be laid this fall and the building will be completed in the early spring. The institution will accommodate forty patients.

OHIO

Medical College Custodian Dies.—Richard Pugh, aged 83, for nearly fifty-five years custodian of the Starling Medical College, Columbus, and well known to many generations of students, died at his home, October 19.

Meeting of Women Physicians.—At a meeting of the Columbus Women's Medical Club, held November 10, Dr. Jane G. Roney Husted was elected president; Dr. Harriet B. Clark, vice-president, and Dr. Alice M. Johnston, secretary-treasurer.

State Hospital Physicians Meet.—At the semi-annual meeting of the Association of Assistant Physicians of the Ohio State Hospitals, held at the Athens State Hospital, October 4 and 5, Dr. Clyde C. Kirk, Toledo, was elected president; Dr. G. G. Edwards, Gallipolis, vice-president; Dr. Mary K. Isham, Columbus, secretary, and Dr. August C. L. Werner, Dayton, treasurer. The next meeting will be held at the Columbus State Hospital.

PENNSYLVANIA

Milk Laboratory Moves.—The milk laboratory conducted by the milk committee of the Wyoming Valley Society for the Prevention and Treatment of Tuberculosis has been moved to the State Dispensary Building, 184 South Washington Street, Wilkes-Barre, where nurses will be on duty every morning from 9 to 10, to consult with and advise mothers.

Open-Air Pavilion Dedicated.—A children's pavilion and open-air school at the Jewish Consumptive Sanitarium at Eagles-ville, was dedicated November 5. After addresses had been made by the chairman and others, the keys of the various rooms and compartments were auctioned off and $3,400 was netted. The sum of $425 was realized by the sale of chairs.

For Sewage Disposal.—The borough council of Norristown has appropriated $500 for the use of the borough engineer to obtain expert advice and to view sewage disposal plants in Ohio, in order to establish a sewage disposal plant at Norristown. It is reported that the one at Philadelphia is an experiment, the one at Reading unsatisfactory, and that the one erected at the State Hospital for the Insane at Norristown is a public nuisance.

Personal.—Dr. John C. Hutton, Harrisburg, is convalescent after a cerebral hemorrhage.——At a meeting of the directors of the Homestead Hospital, November 3, Dr. John Ballagi was elected a director, vice Dr. William A. Jones, resigned, and Dr. Charles A. Shirey, Manor, was elected resident physician.——Dr. Boyd W. Schaffner, Elwood City, has been appointed local surgeon for the Pittsburg, Lake Erie, Baltimore and Ohio Railroad, vice Dr. William A. Shannon, resigned.

Tri-County Medical Society.—The Goodno Medical Society, composed of physicians of Dauphin, Lancaster and York counties, met in Lancaster, October 12. Dr. George W. Brose, York, was elected president; Dr. Roscoe L. Perkins, Harrisburg, vice-president, and Dr. Brantley F. Parker, York, secretary-treasurer.

Philadelphia

Statue Presented.—A life-sized marble statue of Æsculapius, a replica of the one in the Vatican at Rome, was presented to the College of Physicians by Dr. Richard H. Harte, and accepted on behalf of the college, by Dr. S. Weir Mitchell, at the November meeting of the college.

Hospital Buys Lot.—The German Hospital of the city of Philadelphia has purchased a lot at the northeast corner of Corinthian Avenue and Cambridge Street for $4,000. The hospital recently built a nurses' home at the southeast corner of Corinthian Avenue and Cambridge Street.

Memorial Funds.—Reports from the committee in charge of the memorial to the late Dr. De Forest Willard announce that the fund at present amounts to $2,000. A similar committee in charge of the memorials to the late Dr. James Baynes Walker announces that the fund for that memorial has reached $1,000.

City Hygiene Laboratory to be Moved.—Because of the smallness of the quarters in the City Hall, Dr. Joseph S. Neff, director of Public Health and Charities, plans to have the laboratory of hygiene, part of the bureau of health, removed to the Philadelphia General Hospital, and has asked councils to appropriate money to build a new laboratory there.

University of Pennsylvania Alumni Hold Family Party.—The Philadelphia Alumni Society of the Medical Department of the University of Pennsylvania has issued invitations to a family party to be held at the Bourse, November 18. A reception is to be held in honor of the newly elected professors in the medical department, Drs. Gwilym G. Davis, John B. Deaver, M. Howard Fussell, Milton B. Hartzell, Edward Martin, A. M. Pearce, A. H. Richards, Alfred Stengel and Alonzo E. Taylor. The dean, Dr. Allen J. Smith, will tell of the present requirements for admission; Dr. Barton C. Hirst will report on the requirements for admission in the various medical schools and what the state board demands of schools whose graduates desire licenses to practice; Dr. Alfred Stengel will outline the course of medical instruction; Dr. Edward Martin will tell of the teaching of surgery and allied branches; Dr. Alonzo E. Taylor will give an account of how physiologic chemistry is taught, and A. H. Richards will detail the methods followed in teaching pharmacology.

VIRGINIA

Norfolk County Physicians Meet.—At the annual meeting of the Norfolk County Medical Society, held October 7, Dr. Philip St. L. Moncure was elected president; Dr. Edward T. Hargrave, vice-president, and Dr. Charles L. Harrell, secretary-treasurer.

New Rule Gives More Room.—The health commissioner, Ennion G. Williams of Richmond, announces that under the provisions of the rule limiting the stay of patients at the Catawba Sanatorium to six months, removals and changes have become so frequent that suitable patients can now be admitted without long delays.

Personal.—Dr. Junius F. Lynch, Norfolk, was operated on for appendicitis at St. Luke's Hospital, Richmond, October 28, and is reported to be doing well.——Dr. Randolph A. Watts, intern at the Richmond City Hospital, was operated on for appendicitis in that institution, October 31.——Dr. William C. Day, Danville, was thrown from his horse, October 31, fracturing his leg.——Dr. William T. Oppenheimer, Richmond, has been selected by the board of directors of the state penitentiary as surgeon of that institution to fill the unexpired term, which extends to December 31, vice Dr. Charles V. Carrington, removed. Jan. 1, 1912, Dr. Herbert Mann will take charge of the work.

WASHINGTON

Industrial Insurance Examiners.—The following physicians have been appointed to make examinations for the state industrial insurance commission: Drs. I. Royal Watkins, Aberdeen; Winston Appleby, Anacortes; W. W. Ballaine, Bellingham; David Livingstone, Centralia; Edward W. Stimpson, Roslyn; Delbert O. Kearby, Cle Elum; Hannibal Blair, Elma; Adelbert J. McIntyre, Hoquim; Guy E. Marcy, Montesano; James F. Scott, North Yakima; Henry B. O'Brien, Tacoma; Harrison A. Wright and Curtis H. Thomson, Seattle; James F. Mills, Sedro Woolley; Drs. Barnhart & Newell, Spokane; A. L. Mathieu, South Bend; Leon L. Love and Joseph F. Griggs, Tacoma; Floyd A. Bird, Kelso, and Howard R. Keylor, Walla Walla.

Opposes Contract Work.—The Pierce County Medical Society at its meeting in Tacoma, October 17, adopted resolutions against contract practice for lodges. The by-laws of the society are to be changed so as to provide for the proper disciplining or punishment of members who violate this rule.

WEST VIRGINIA

Personal.—Dr. Edward Davis has been appointed medical inspector of the schools of Salem.——Dr. Charles A. Barlow, Benwood, has been reelected brigadier-general of the uniform rank of Knights of Pythias.——Dr. Martin V. Godbey, Charleston, has succeeded Dr. Otis L. Aultz as small-pox and infirmary physician of Kanawha County .

Sanatorium Opened.—The Sanatorium of the Antituberculosis Society of Ohio County, at Viewpoint, was opened without formalities last month. The formal opening of the institution will be delayed until spring. The first of the three buildings is already completed and in occupancy; the work on the other two buildings is proceeding rapidly.

WISCONSIN

Society Meeting.—The Trempealeau-Buffalo-Jackson County Medical Association held its annual meeting at Arcadia, recently. Dr. Edwin E. Moore, Merrilan, was elected president; Dr. Carroll L. Storey, Whitehall, vice-president; Dr. Henry A. Jegi, Galesville, secretary and treasurer, and Dr. Bertholet P. Rosenberry, Arcadia, delegate to the state association.

Personal.—Dr. C. J. Wallace, Superior, has been appointed surgeon for the new steel plant of the Minnesota Steel Company on the St. Louis River.——Drs. Victor F. Marshall and James V. Cavanan, Appleton, are among the organizers of the Oregon-Wisconsin Timber-Holding Company.——Dr. Guy C. Waufle, Janesville, who was operated on in Mercy Hospital in that city, November 2, is reported to be doing well.

Antituberculosis News.—At the annual meeting of the Wisconsin Antituberculosis Association, held in Milwaukee, October 13 and 14, the following officers were elected: president, Dr. Mazyck P. Ravenel, Madison; vice-president, Dr. Gustave Windesheim, Kenosha, and executive secretary, Dr. Hoyt E. Dearholt, Milwaukee.——The proposition of the Milwaukee County Board to lease and operate the Greenfield Sanatorium as a county institution has been approved by the health committee and accepted by the city council. This gives to Milwaukee the Greenfield Sanatorium for advanced cases and the Blue Mound Sanatorium for incipient cases of tuberculosis.——At a meeting held in the Appleton City Hall, October 7, organization of the Appleton Antituberculosis Association was effected. The association will be a local affiliated branch of the state association.——A special committee appointed at the last meeting of the Outagamie County Board has selected a site for the County Tuberculosis Sanatorium at Kaukauna.——The Green Bay Public Health Association was organized October 6. Dr. Austin O. Olmsted, Green Bay, was named as a member of the advisory board. The objects of the new organization are the study of the local public health to promote health conditions and cooperation with the state antituberculosis association in its work.——The Social Workers' Tuberculosis Sanatorium, Milwaukee, was formally opened October 8. Although the association is Jewish, the institution is non-sectarian. It has at present twelve patients.

GENERAL

Dental Corps for Organized Militia.—A ruling by Brigadier-General Evans, chief of the division of militia affairs, just issued, sanctions the attachment of a dental corps to militia organizations in the same proportion as exists in the regular establishment.

Veteran Declared Leper.—John R. Early, a veteran of the Spanish-American War, who, it was claimed, was suffering from leprosy, and whose case became celebrated by reason of the differing opinions of experts, has finally been declared to be a leper by the medical board of the pension bureau and has been placed on the total disability list of the bureau.

Æsculapian Society Meeting.—The sixty-fifth annual meeting of the Æsculapian Society of the Wabash Valley was held in Paris, Ill., October 26, and the following officers were elected: President, Dr. Cyrus E. Price, Robinson, Ill.; vice-president, Dr. J. W. Evinger, Paris, Ill.; and secretary and treasurer, Dr. Herbert N. Rafferty, Robinson, Ill. (reelected). The next meeting will be held in Terre Haute, Ind., in April, 1912.

Army Medical Corps Examinations.—Preliminary examinations for the appointment of first lieutenants in the Army Medical Corps will be held Jan. 15, 1912. Full information can be procured on application to the "Surgeon-General, U. S. Army, Washington, D. C." Applicants must be citizens, between 22 and 30 years of age, and medical graduates, who have had at least one year's hospital training as an intern, after graduation.

Ohio Valley Physicians Elect.—The annual meeting of the Ohio Valley Medical Association was held in Evansville, Ind., November 8 and 9, and the following officers were elected: president, Dr. Louis D. Brose, Evansville, Ind.; vice-presidents, Drs. Daniel N. Eisendrath, Chicago; Dr. Henry R. Alburger, Indianapolis, and Angus D. Willmoth, Louisville, Ky., and secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville, Ind. (reelected).

Personal.—Surgeon Henry R. Carter, U. S. P. H. and M.-H. Service, in command of the U. S. Marine Hospital, Louisville, who has been ill with typhoid fever, has been taken to Johns Hopkins Hospital for treatment.——Major Clyde S. Ford, M. C., U. S. Army, Fort Harrison, was operated on for appendicitis, at Grant Hospital, Columbus, November 1, and is reported to be improving.——Dr. Roger G. Perkins, professor of hygiene in Western Reserve University, Cleveland, was appointed a member of the executive committee of the International Pure Water Association, and not Dr. Francis E. Fronczak, Buffalo, N. Y., as announced in THE JOURNAL of October 7.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the Alvarenga Prize for 1911 has been awarded to Dr. Francis D. Patterson, Philadelphia, for his essay on "The Parathyroid Glandules."——The next award of the prize, being the income for one year of the bequest of the late Senor Alvarenga and amounting to about $180, will be made, July 14, 1912, provided that an essay deemed worthy of the prize shall have been offered. Essays may be on any subject in medicine, but must not have been published; must be typewritten; if written in a language other than English, must be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1912.

Clinical Congress.—The second annual meeting of the Clinical Congress of Surgeons of North America was held in Philadelphia, November 7-16. Up to November 11, more than 1,100 members had registered, including prominent men from all over the country. The work of the congress consisted of day and evening sessions; the day sessions were devoted entirely to clinical surgery, and clinics were conducted in all hospitals in the city from 9 in the morning until 5 in the afternoon. The evening literary sessions were conducted largely by men from out of the city, who presented papers on surgical subjects, many of the lectures being illustrated by stereopticon views. Both the literary and the clinical sessions were exceedingly interesting.

The first evening was devoted to surgical pathology of the stomach and duodenum, surgery of the liver and bileducts and surgery of the pancreas. The second evening was occupied with the president's address and addresses with lantern demonstrations, by Drs. Alexis Carrel, New York City, and William J. Mayo, Rochester, Minn., on subjects which have already been noticed in THE JOURNAL. On the evening of November 10, neurologic subjects were discussed, the chief papers being by Drs. Hugh T. Patrick, Chicago, on "The Technic and Results of Deep Injections of Alcohol for Tic Douloureux;" by Dr. Harvey Cushing, Baltimore, on "Clinical Types of Disordered Function of the Pituitary Body," and by Dr. Alfred Reginald Allen, Philadelphia, on "The Operative Treatment of Experimental Lesion of the Spinal Cord Equivalent to Crush Injury of Fracture Dislocation of the Spinal Column."

On the evening of the thirteenth, Dr. Charles H. Mayo, Rochester, Minn., presented a paper, with stereopticon demonstration, on the thyroid gland and its diseases; Dr. Joseph A. Blake, New York City, discussed the operative treatment of fractures, and Dr. John M. T. Finney, Baltimore, considered the significance of blood in the stools. The evening session of November 14 was devoted to pediatrics. Dr. Charles L. Scudder, Boston, read a paper, with lantern demonstration, on the surgical treatment of pyloric stenosis in infancy; Dr. Charles M. Dowd, New York City, discussed the differences between surgery of children and adults, with lantern demonstration, and Dr. R. Tunstall Taylor, Baltimore, gave a preliminary report on the experimental study of stereo-arthrolysis. Obstetrics was the object of discussion in the literary session of November 15. Dr. Edward Reynolds, Boston, spoke on the surgery of the tubes and ovaries; Dr. Edward B. Cragin, New York City, discussed the treatment of ectopic gestation and Dr. John A. Sampson, Albany, N. Y., gave an address, with lantern demonstration, on the circulation of fibroid tumors. On the same evening there was a combined meeting of the Sections of Otology, Laryngology and Ophthalmology, at which Dr. Joseph H. Bryan, Washington, D. C., read a paper on the surgery of sinuses and its relation to orbital complications; Dr. Gorham Bacon, New York City, discussed the relation between otitic and intracranial diseases, and Dr. John E. Weeks, New York City, described the newer operations for glaucoma. The clinical program included operations and demonstrations at practically all the hospitals in Philadelphia.

The local profession entertained lavishly. A general reception was given by the Philadelphia County Medical Society at Wanamaker's Tea Room, November 8; a reception to the president was given by local physicians at the Bellevue-Stratford, November 9, and on November 17, the Medical Club of Philadelphia gave a reception in honor of the president and president-elect at the Bellevue-Stratford. Drs. John B. Murphy, Abraham Jacobi, Albert J. Ochsner and Franklin H. Martin were the guests of honor at a dinner given by Dr. Edward E. Montgomery, at the University Club, November 9; Dr. John B. Deaver gave a dinner in honor of Dr. Maurice H. Richardson, Boston, at the Union League Club, November 8, and Dr. William J. Mayo, Rochester, Minn., was the guest of honor at a dinner given by Dr. Charles H. Frazier, November 9. The following officers were elected at the business session, November 13: president, Dr. D. Edward Martin, Philadelphia; vice-president, Dr. George E. Brewer, New York City; general secretary, Dr. Franklin H. Martin, Chicago (reelected), and general treasurer, Dr. Allen B. Kanavel, Chicago (reelected).

FOREIGN

Pan-American Sanitary Conference.—An important meeting of delegates from the various republics of North and South America opened at Santiago, Chile, November 1. It is the fifth international sanitary conference of American republics.

Death of Bernhard Fränkel.—The cable reports the death, at the age of 75, of Prof. Bernhard Fränkel, leader in the campaign against tuberculosis, founder in 1887 of the university policlinic for the nose and throat at Berlin, and editor of the *Archiv für Laryngologie* since 1894. His numerous works embrace all medical fields connected even remotely with laryngology, and he was prominent in the organization of the medical profession and served for twenty-five years as secretary of the Berlin medical society. In honor of his seventieth birthday, Nov. 17, 1906, a historical laryngologic exhibition was held at Berlin, and the fiftieth anniversary of his entering on his professional career was celebrated in 1909. To Fränkel more than to any one else, probably, is due the great development in Germany of the system of sanatorium treatment of tuberculosis among wage-earners.

The Nobel Prize in Chemistry for 1911.—The cable announces that the Nobel prize for chemistry has been awarded this year to Mme. Curie, who already has shared in one of the prizes, the prize for physics in 1903 having been divided between Becquerel, discoverer of the Becquerel rays, and Prof. and Mme. Curie, the discoverers of radium. In a recent announcement to the Paris Academy of Sciences Mme. Curie stated that in collaboration with Prof. de Bierne she had succeeded in producing pure radium by treating radium bromid by an electrolytic process and extracting the metallic radium by distillation. It is said to have the appearance of a white metal, it changes to black on exposure to the air, burns paper and oxidizes in water. It is most notable that anyone should win such fame in two branches of science as to be awarded an important prize in both. Two other women have received Nobel prizes: Selma Lagerlöf for her literary works, and Baroness von Suttner of Vjenna for her efforts and novel in the interests of peace.

CANADA

Need of Institutes of Physiology.—Dr. N. H. Alcock, the newly-appointed professor of physiology in McGill University, emphasizes the pressing need of an institute for physiology in connection with the university. He claims that this would cost only $25,000, and would require not to exceed $4,000 for its annual maintenance.

Tuberculosis Hospital for Quebec.—The government of the Province of Quebec has granted an appropriation of $3,500 per annum for the maintenance of a tuberculosis hospital in the city of Quebec, with accommodation for fifty patients. The institution, which will cost $60,000, is to be placed under the medical control of Laval University, Quebec.

Transfers of Medical Officers.—Lieut.-Col. James Alexander Grant, administrative medical officer of Toronto, is to be transferred to Halifax; Lieutenant-Colonel Hero R. Duff, Kingston, to Toronto; Lieutenant-Colonel C. W. Belton, London, to Kingston; Major J. D. Brousseau, Quebec, to London, and Lieutenant-Colonel Gilbert L. Foster, Halifax, N. S., to Quebec.

Need for Isolation Hospital.—Pleading for a larger and better isolation hospital for Toronto, Alderman McCarthy stated at a recent meeting that more than one-half of the tuberculosis patients in that city are destitute, that there are from 600 to 700 school children at present suffering from tuberculosis, that 232 people died during 1911 from the disease, and that it has been necessary to add two extra nurses to the station of the health department for the care of tuberculosis cases.

Personal.—Dr. Charles Sheard has resigned as professor of preventive medicine in the University of Toronto.——Dr. James Alexander Hutchison, Montreal, has been appointed associate professor of surgery and of clinical surgery in the medical department of McGill University. Dr. John M. Elder has been advanced to a similar station.——Dr. Donald D. MacTaggart has been appointed professor of medical jurisprudence in the McGill University.——Dr. Charles O'Reilly, Toronto, has returned from abroad.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Nov. 4, 1911.

Plague in England

In previous letters to THE JOURNAL the presence of plague in the county of Suffolk has been described from time to time. It is supposed to have been imported by rats in grain ships coming from the East. In December, 1906, and January, 1907, several cases of what was supposed to be pneumonia occurred in two adjoining cottages in the parish of Shotley. There were three cases in one house, two of which were fatal, and five cases in the other, of which four were fatal. It is believed now that all these were cases of pneumonic plague. In January, 1910, two persons died at Trimley, exactly opposite Shotley, on the other side of the river Orwell, from a disease now believed to have been plague. In September, 1910, four persons died in two adjoining cottages in the village of Freston, six miles from Shotley. A little girl in one of the cottages was the first to die, and she was followed by her mother, who had nursed her. The woman was nursed by her husband and by a woman who lived in the next cottage, and both these persons died. The peculiarly infectious character of the disease aroused suspicion, and by this time no doubt exists that all four died of pneumonic plague. It was found that for at least three years, and possibly longer, rats had been dying in large numbers in the neighborhood of the Orwell. One or two dead rats were found to be infected with plague, and the capture of a number of live rats near Ipswich resulted in the discovery that more than 5 per cent. of them were suffering from the disease. During the most virulent epidemics in Bombay, when rats were daily caught and examined in great numbers the average of infected rats was rarely found to exceed 6 per cent. Circumstantial evidence points to the banks of the river Orwell as probably being the original point of entry of the infection in Suffolk. Energetic measures were taken for rat destruction on a large scale and no further cases of plague in man occurred until October 10, this year, when a sailor was admitted to a hospital at Shotley with pneumonia. Examination of his sputum revealed plague bacilli. He was at once isolated and all precautions taken to prevent the spread of the disease. It is thought that he derived the disease from a rabbit caught in the district (these animals as well as rats had previously been found affected with plague). While preparing the rabbit for dinner he cut his finger. A notice has been posted up at the local naval barracks prohibiting anyone from taking in either hares or rabbits.

An Imperial Hospital

For some time it has been felt that more adequate facilities than those provided in private nursing homes are required for dealing with the large number of patients coming to London from the provinces and from oversea dominions for operations. The necessary capital, $90,000, has now been subscribed and a site secured for the erection of a building to accommodate a well-equipped institution which is to be open to the public at moderate charges, and will not be in any way of a charitable character. The promoters of the movement point out that under present conditions patients have no choice between a charity hospital or one of the hundreds of private nursing homes, which in many cases are run as speculations and are not subject to medical supervision, while the charges are often prohibitive to persons of moderate means, the fees ranging from $50 to $100 per week. Nursing homes are, almost without exception, merely converted dwelling-houses and therefore entirely unsuited to modern requirements of the sick. Often, too, they are inefficiently conducted. In the new hospital, which has the hearty support of a large number of London physicians, it is intended to give special consideration to patients from oversea dominions when they are accredited by the agents-general or other official representatives of their states. Provision is to be made in the first instance for forty beds, but the building will be so constructed that additional floors can be added at any time. The management of the hospital will be chiefly in the hands of the committee of physicians elected by the board of directors and a staff of qualified nurses will be employed. Patients will be permitted to have their private doctors. Charges will range from $15.50 upward per week. After payment of a moderate dividend on the preference and ordinary shares a substantial sum of any balance of profit will be set aside each year to form a fund to assist necessitous patients in paying their fees.

The Health of the Navy

The report on the health of the navy during 1910 has just been issued and shows steady improvement. The total force was 113,530 and the total number of cases of disease and injury, 74,233, which gives a ratio of 653 per thousand, a decrease of 42 compared with the average ratio of the preceding five years. The total number of days' sickness was 1,140,568, representing an average loss to the service of 10.04 days for each man, a decrease of 0.4 as compared with the average of the preceding five years. Tuberculosis shows a steady decline; the number of cases during the year was 261, which is below the average. This is attributed to improvement in the general environment and prompt removal of sources of infection. With regard to venereal diseases there is some improvement in the returns for primary syphilis, but little change in other respects. The highest rate for venereal diseases is in the China station, where it amounts to 154 per thousand.

Death From a Wasp-Sting and Workman's Compensation

In the Court of Appeal a curious case was heard, in which the widow of a man who was stung by a wasp and died from septicemia as a consequence claimed under the Workmen's Compensation Act. In the lower court the judge found for her. The appeal was made on the grounds that there was no evidence that the man was stung during his employment or that the accident had arisen out of his employment, as was required by the act. The man was engaged in threshing wheat on a farm and the conclusion was arrived at that wasps which were hibernating in the stack were disturbed by the engine and came out and stung the man. The Master of the Rolls (the presiding judge) gave judgment reversing the decision of the lower court, on the ground that there was no evidence that the wasps were disturbed by the machine and, therefore, it had not been proved that the accident arose out of the man's employment.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 27, 1911.

Personal

M. Ranvier, professor of general anatomy at the Collège de France, has, at his own request, been allowed to retire. According to rumor the professorship will be discontinued.

Honors to Prof. R. Lépine

October 22, the pupils and friends of Prof. R. Lépine of Lyons, who has just retired, met in the amphitheater where he had taught so long to present him with a jubilee book prepared in his honor. Speeches were made by his successor in the chair of clinical medicine, Professor Roque, and by Professors Collet and Cazeneuve of Lyons, Landouzy of Paris and Henrijean of Liége. The last-named, speaking in the name of foreign scientists, explained how much of Professor Lépine's instruction crossed the frontiers of France and how well his name was known in Belgium and even in Germany. M. Joubin, the rector who presided over the ceremony, thanked Professor Lépine for the renown which he had brought to the Lyonnese University and read letters from the director of superior instruction and the minister of public instruction expressing their esteem and admiration for the learned clinician.

Plan for the Creation of a Superior Council of Medical Studies

The Association des membres du corps enseignant des Facultés de médecine, founded two years and a half ago (THE JOURNAL, April 10, 1909, p. 1192), demands the creation of a Conseil supérieur des études médicales. There is at present a Conseil supérieur de l'Université, which has jurisdiction over all national instruction. But this assembly has not the right of initiative and is powerless to obtain reforms in medical instruction. The proposed assembly, composed solely of physicians, most of whom would be named by their colleagues and not by the minister of public instruction, would exist for the purpose of advising and assisting the government on all matters pertaining to medical instruction. It would have the right of initiative. The provinces would have the suitable representation which they have hitherto lacked. Besides the minister of public instruction, the vice-rector of the University of Paris and the director of superior instruction, who would belong to it ex officio, there would be twenty-nine medical members of the superior council of medical studies, two senators, two deputies, four ordinary practitioners, one representative of the preparatory schools of medicine, one of the military schools, fourteen representatives of the Facultés, chosen by their members, and five physicians of the hospitals. The latter, although they have instructed successive generations of students, have up to the present had no representation on the higher councils of instruction and the oversight appears altogether unjust.

Measures Against Frauds in Foodstuffs

The municipal laboratory of Paris has just created a service of rapid analyses of foodstuffs which will permit merchants to test their wares before offering them to their customers and consumers to test the quality of the products sold to them. The results of the analysis will be communicated to the inquirer two hours after the sample is delivered.

Tetanus an Occupational Disease

A workman died of tetanus. His widow testified that he had received a slight prick in his right foot ten days before his death and sought compensation on the ground that he was the victim of an industrial accident. The courts have decided in her favor.

Dangerous Altitudes for Aviation

In view of the records of the height to which ascensions have been made lately, and in view of the fact that certain aviators are ambitious to surpass the altitude of 5,000 meters, the Aero-Club of France, on the advice of its commission on physiologic ascensions, has thought it wise to make known the dangers to which aeronauts are exposed in high altitudes and the precautions that they ought to take. From the physiologic ascensions which have been organized for about ten years by the Aero-Club, it seems that above 4,500 meters one is in the dangerous zone. At the altitude of 5,500 meters a given volume of air weighs half as much as at the level of the ground. The oxygen being rarified, the only means of providing against possible accidents is to carry a provision of oxygen. The most practical and efficient means of making use of it is to have a tube of compressed oxygen with an inhalation mask which may be applied to the aviator's face.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 27, 1911.

Personal

Professor Lesser, director of the clinic for skin and venereal diseases, has been made regular professor; heretofore he was only an honorary professor and hence not a member of the faculty. His present promotion has only a personal character, affecting him alone, and the department of education retains the power not to grant the same title to his successor. Professor Neisser of Breslau and Professor Killian, who was recently appointed professor of laryngology at our university, and certain other specialists have a similar position.

Professor Caspary of Königsberg died October 19 at the age of 74. Until 1905 he held the chair of dermatology at that university.——Professor Jaffé of Königsberg, died October 26.——Privy Councilor Aschenborn died October 20, at the age of 60, in Berlin. He was a very able practitioner and a member of the state medical department (*Medizinalabteilung des Ministeriums*).

The Göttingen ophthalmologist, Professor v. Hippel, celebrated his seventieth birthday, October 24.

Honors for Professor Waldeyer

As an honor in celebration of Waldeyer's seventy-fifth birthday, the city of Göttingen has decided to place a memorial tablet on the house in which he lived during his student days. November 3 the Berlin student body on the occasion of the golden jubilee of his doctorate held a Waldeyer *Kommers*.

A Tax on Bachelors

In the principality of Reuss each person of a certain age, who has no relatives whom it is his duty to support, must pay a special tax. Whether this draconic regulation is likely to increase the tendency to marry, is doubtful. The tax will always be smaller than the increasing expense of housekeeping for a married couple.

Museum of Hygiene in Dresden

Some important departments of the international hygienic exposition in Dresden, which will be closed in a few days, will remain, particularly the popular "Hall of Mankind" and the historical and ethnological department, which will be transformed into a permanent museum of hygiene for the city of Dresden. This is on condition that the city of Dresden erects a special building therefor and appropriates means of maintenance for the museum. These departments are the private property of the originator and manager of the exposition, Mr. Lingner, who has lately been appointed privy councilor, with the title of "excellency." He will present these departments to the city in spite of the fact that offers to buy them have reached him from other countries. It is said that he has been offered from America the sum of $1,000,000 (4,000,000 marks) for the collections.

The exposition has been extraordinarily successful; it was visited by more than 5,000,000 people and made considerable profits, estimated by some at $250,000 (1,000,000 marks).

Employment of Medicinal Baths Without a Physician's Prescription

The Prussian scientific deputation for medical affairs has been asked by the minister to give an opinion on the question, whether there is any objection from the standpoint of the public against the administration of medicinal baths without a physician's prescription. The deputation comes to the following conclusion: It is not practicable to require a medical prescription for every application of systematic treatment in the bathing places and bath institutes of the large cities. On the other hand, it is desirable that bathing institutes under the advice of their physician should be required to demand medical prescriptions for special forms of treatment, and that they warn their patrons in a proper way by circulars and bathing cards and placards against taking systematic extreme courses of treatment without the directions of a physician.

A Chair for Natural Therapy Refused

The syndicated sickness insurance companies of Saxony, the local Krankenkassen, have recently petitioned the minister of education of Saxony for the establishment of a professorial chair for natural therapy (Naturheilkunde), in the university of Leipsic. As was to be expected, this proposal was refused for the following reasons: A new professorship can be established only for a special independent department of knowledge, which is not yet represented in the university or but insufficiently. The so-called natural therapy, however, cannot be regarded as such a branch of knowledge, as it does not rest on an independent systematic basis and is not a distinctive field of knowledge, separated from other departments of medicine, but is rather a more or less arbitrary collection of a number of special experiences regarding the curative action of certain natural forces. The natural curative methods of this sort are by no means neglected by the representatives of medical science, but for a considerable time have been employed in suitable cases and in an ever increasing proportion. Their employment in the clinics of the Leipsic university is already provided for to a considerable extent at the present time, and marked expansion is already planned.

Ethics of Advertising by Sanatoriums

The physician who was the owner of a certain sanatorium was condemned by a Prussian court of honor for the frequent advertisement of his sanatorium (in all six times). The superior court reversed the decision and acquitted the accused. The content of the advertisement was not objectionable and moreover the matter concerned a sanatorium in a large city which could not exist without occasional advertisement. For this reason the action of the accused could not be regarded as unprofessional.

Marriages

JAMES BIRCKHEAD, M.D., New York City, to Miss Helene Bilodeau of Montreal, Que., at Wilmington, Del., October 31.

SAMUEL T. NICHOLSON, JR., M.D., Bonne Terre, Mo., to Miss Mary Carter Peyton of Newcastle, Del., November 4.

FREDERICK J. ZEIGLER, M.D., Portland, Ore., to Miss Anne Elizabeth Midlam of Oregon City, Ore., November 8.

WILLIAM BURKE, M.D., to Miss Bertha A. Cooke, both of Greenwich, Conn., at Waterbury, Conn., October 31.

GEORGE HOWARD HUNGERFORD, M.D., Philadelphia, to Miss Harriet E. Schrock of Norritonville, September 21.

BERNARD VINCENT MCDERMOTT, M.D., Stuart, Neb., to Miss Echo Lenore Shank of Massena, Ia., October 25.

FREDERICK O. GRONVOLD, M.D., Adams, N. Dak., to Miss Louise Baasen of New Ulm, Minn., October 16.

OSCAR CHARLES REEVE, M.D., New York City, to Miss Grace Howard Fisher of Ossining, N. Y., October 30.

ARTHUR FREEBORN CHACE, M.D., to Miss Kathleen Stirling Fletcher, both of New York City, November 2.

DON P. PETERS, M.D., to Miss Retta A. Mencke, both of Baltimore, at Wilmington, Del., October 28.

WILLIAM F. DUGAN, M.D., Campbell, Neb., to Miss Opal L. Dearing of Grand Island, Neb., October 30.

WALTER T. DANNREUTHER, M.D., to Miss Anna R. Tower, both of New York City, October 26.

WILLIAM G. MORTON, M.D., to Miss Katherine Christiansen, both of Iowa Falls, Ia., recently.

ALLEN R. HICKMAN, M.D., Douglas, Ariz., to Miss Keeler of Los Angeles, Cal., October 19.

BRADY DEXTER EPLING, M.D., to Miss Louise Greene, both of Petersburg, Ill., November 2.

Deaths

William Nye Swift, M.D. Harvard Medical School, 1881; a charter member of the staff of St. Luke's Hospital, New Bedford, Mass., and president of its staff in 1910; an unstinting contributor of time and money to that institution and the Hospital for Consumptives at Sassaquin; a member of the American Medical Association and the American Academy of Medicine, and for fourteen years city physician and a member of the Board of Health of New Bedford; died at his home, October 27, aged 57.

John Bradley Crandall, M.D. University of Vermont, 1862; a member of the American Medical Association and formerly president and secretary of the Rock River Valley (Ill.) Medical Association; assistant surgeon of the Thirteenth Vermont Volunteer Infantry during the Civil War and on duty at the Baxter and Sloan General Hospitals; a member of the Chicago Commandery of the Loyal Legion; died at his home in Sterling, Ill., October 21, aged 71.

Henry Alfred Robbins, M.D. University of Pennsylvania, Philadelphia, 1861; a member of the American Medical Association and American Therapeutic Association; professor of genito-urinary diseases and dermatology in Howard University, Washington, D. C.; dermatologist to the Washington Hospital for Foundlings; a medical cadet and assistant surgeon throughout the Civil War; died at his home in Washington, October 26, aged 72.

Charles William M. Brown, M.D. Harvard Medical School, 1876; a member of the American Medical Association and vice-president of the Medical Society of the State of New York; dean of the medical faculty of Elmira, N. Y.; a specialist on diseases of children and a member of the consulting staff of the Arnot-Ogden Memorial Hospital; died in that institution, October 29, from pneumonia, following an attack of influenza, aged 63.

Ovidus Arthur Griffin, M.D. University of Michigan, Ann Arbor, 1899; formerly demonstrator of ophthalmology and otolaryngology in his alma mater; a member of the American Medical Association and Academy of Ophthalmology and Otolaryngology; examining oculist and aurist to the Washtenaw County (Mich.) U. S. pension examining board; died at his home in Ann Arbor, October 28, from spinal meningitis, aged 39.

Alexander F. Pringle, M.D. McGill University, Montreal, 1880; of Northfield, Minn.; formerly a member of the American Medical Association; oculist and aurist to the Minneapolis state schools for the deaf, and blind, and feeble-minded, was taken ill at his old home in Cornwall, Ont., on his return from Europe, and died October 27, from heart disease, following an attack of nervous prostration, aged 58.

Charles H. Gundelach, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1865; for a quarter of a century a member of the staff of Good Samaritan Hospital of St. Louis, and later a member of the attending and consulting staff of the St. Louis Children's Hospital; a member of the Academy of Science; died at his home in St. Louis, October 23, from heart disease, aged 74.

John J. Hamilton, M.D. Fort Wayne (Ind.) College of Medicine, 1881; formerly a member of the American Medical Association and secretary of the Marshall County (Ind.) Medical Society; coroner of Marshall County, Ind., for six years; formerly local surgeon of the Oregon Short Line at Caldwell, Idaho; died at his home in Rolfe, Ia., September 4, from diabetes, aged 58.

Oscar Henry Benker, M.D. Illinois Medical College, Chicago, 1904; of St. Louis; a member of the American Medical Association; a specialist on tuberculosis and recently appointed consul of Switzerland in St. Louis; who had landed in New York from Europe, October 23; died suddenly in a railway station in New York City, from cerebral hemorrhage, aged 46.

John Charles Hoye, M.D. Western Reserve University, Cleveland, 1888; a member of the Medical Society of the State of Pennsylvania; of New Castle; who was found unconscious, November 3, in New York City, with a fractured skull and other injuries, the result, it is believed, of an attack by thugs; died in Bellevue Hospital on the same day, aged 45.

James Henry Thompson, M.D. University College of Medicine, Richmond, Va., 1908; a member of the Medical Society of Virginia; assistant surgeon to the Pocahontas (Va.) Collieries Company, while en route to his old home in Watsonville, Cal., died in a sleeping car in West Virginia, October 24, from heart disease, aged 28.

James Richard Richards, M.D. Rush Medical College, 1900; for several years a practitioner of Thermopolis, Wyo.; formerly a member of the American Medical Association; who moved to San Diego, Cal., three months ago; died in the office of a physician in that city, September 19, from cerebral hemorrhage, aged 42.

Richard H. Parker, M.D. University of Pennsylvania, Philadelphia, 1858; a member of the Medical Society of Virginia; assistant surgeon in the Confederate service throughout the Civil War; one of the oldest practitioners of Portsmouth, Va.; died at his home, October 26, from cerebral hemorrhage.

William Brown Martin, M.D. Rush Medical College, 1888; a member of the American Medical Association; died at his home in Sherrard, Ill., November 3, from the effects of an incised wound of the throat, self-inflicted, it is believed with suicidal intent, while temporarily insane, aged 51.

Frederick A. King, M.D. New York Medical College, New York City, 1863 (license, Utah, 1894); a pioneer practitioner of Weber County, and for twenty-two years a practitioner of Hooper; died in the Dee Memorial Hospital, Ogden, October 18, two days after a surgical operation, aged 68.

Benjamin Brindley Eads, M.D. Jefferson Medical College, 1891; a member of the American Medical Association; a member of the surgical staff of Cook County Hospital and Illinois Hospital Dispensary; died at his home in Chicago, November 10, from nephritis, aged 41.

Daniel B. Wyatt, M.D. New York University, New York City, 1863; a member of the State Medical Society of Wisconsin; for more than forty years a practitioner of Fond du Lac; died at his home in that city, October 26, from arteriosclerosis, aged 76.

John Frank Mackey, M.D. Medical College of the State of South Carolina, Charleston, 1860; a surgeon in the Confederate service during the Civil War and the oldest practitioner in Lancaster, S. C.; died at his home, September 26, aged 75.

Moritz Halldorson, M.D. University of Copenhagen, Denmark, 1882; for several years a surgeon in the Danish Navy; a native of Reykjavik, Iceland; died at his home in Park River, Minn., October 20, from cerebral hemorrhage, aged 56.

Cleveland V. Frederich, M.D. Northwestern University, Chicago, 1909; of Springfield, Minn.; died in Mercy Hospital, Chicago, October 24, from tuberculosis of the spine, aged 26.

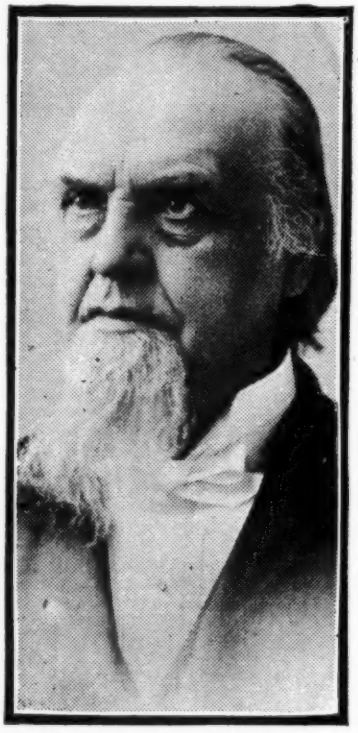
John Hamilcar Hollister, M.D., pioneer practitioner of Chicago, one of the founders of Northwestern University Medical School, sometime editor of the *Journal of the American Medical Association;* died at the home of his sister in Redlands, Cal., November 13, aged 87.

Dr. Hollister was born at Riga, N. Y., Aug. 5, 1824. After graduating from the Rochester (N. Y.) Collegiate Institute in 1842, he entered Berkshire Medical College, Pittsfield, Mass., and was graduated in 1847. He first located in Michigan, but in 1855 moved to Chicago. He soon was made demonstrator of anatomy in Rush Medical College, and in 1856 was one of the founders of what was then known as Chicago Medical College, the Medical Department of Lind University, now the Northwestern University Medical School. He was a trustee and a member of the faculty of this institution from 1856 to 1895, occupying the chairs of physiology, anatomy, pathologic anatomy, general pathology and clinical medicine, and since 1895 has been professor emeritus of clinical medicine.

He became a member of the American Medical Association in 1858, was a member of the Board of Trustees for eight years and editor of THE JOURNAL from 1889 to 1891. He served as president of the Illinois State Medical Society and was its treasurer for twenty years. He also had been president of the Chicago Medical Society and was a charter member of the Chicago Academy of Sciences. He became a member of the medical staff of Mercy Hospital in 1866 and served for thirty years in that position. In 1893 he became editor of the *North American Practitioner.*

Dr. Hollister retired from active practice in 1900; he continued, however, his active interest in matters medical and philanthropic. He was one of the founders and for forty years a member of Plymouth Church. During the Civil War, he was a contract surgeon in the army, and on duty at Camp Douglas, Chicago.

As a practitioner, as a professor and as a man, Dr. Hollister was beloved; he was always ready to give advice and help to those in need, and in his death Chicago loses one of the family physicians of the old school, now so rare.



JOHN HAMILCAR HOLLISTER; 1824-1911

Ward H. Long, M.D. Baltimore Medical College, 1910; and for a year thereafter resident physician to the Maryland General Hospital; died suddenly at his home in Baltimore, October 22, from cerebral hemorrhage, aged 30.

Harry Lockwood Finley, M.D. Long Island College Hospital, Brooklyn, N. Y., 1907; a member of the Medical Society of the County of Kings; died at his home in Bay Ridge, Brooklyn, October 14, from pneumonia, aged 26.

Francis W. H. Massey, M.D. New York University, New York City, 1884; died at his home in Unionville, N. Y., October 13, aged 58.

Robert Richard Hellman, M.D. Harvard Medical School, 1910; of Cincinnati; a honor graduate and intern in the Massachusetts General Hospital; died in that institution, October 25, from septicemia, aged 26.

Noah Rogers Martin, M.D. Worcester (Mass.) Medical College, 1849; of Newark, N. J.; for forty years a practitioner of Westbrook, Me.; died in Dr. Barrett's Hospital in that city, October 7, aged 91.

Levi Matthew Bailey, M.D. Jefferson Medical College, 1897; formerly of Hanover, Pa.; a member of the York County Medical Society; died at his home in Neiman, Pa., October 20, from nephritis, aged 43.

Thomas Clement Hodgson, M.D. Atlanta (Ga.) Medical College, 1867; for thirty-six years a practitioner of Atlanta; died at his home in that city, October 21, from laryngeal tuberculosis, aged 65.

Thomas Grover Herron, M.D. Medical College of Ohio, Cincinnati, 1876; a veteran of the Civil War; died at his home in Linwood Heights, Cincinnati, October 22, aged 71.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CARNEGIE UNIVERSITY

A Drugless-Healing Diploma Mill

The greater attention now paid to non-medicinal therapeutics by the medical profession has aroused popular interest in these methods of treatment. As always happens in such cases, quacks and charlatans have been quick to avail themselves of the opportunities thus offered. Every little while a new "school" of "drugless healing" comes into existence and attempts to work the public and, if commercially successful, has the audacity to insist that its methods shall be recognized by legislative enactment.

The result of this condition has been, and is, that the country is flooded with incompetent ignoramuses who have not brains enough to become shoe-blacks, or enough energy to be street-sweepers, but who possess cheaply purchased "diplomas" from some school of "drugless healing" and who hold themselves out as competent to treat that most complicated piece of machinery—the human body. And the tragedy of the whole thing is, that the state instead of stepping in between the charlatans who conduct these "schools" and the public that is victimized by their graduates, grants such institutions charters and empowers them to confer "degrees."

The Carnegie University, Wilmington, Del., is a corporation chartered by the state of Delaware. Affiliated with this "university" is the National Institute of Mechano-Therapy of New York City, chartered by the state of New York. The "officers and board of regents" of the Carnegie University are:

J. J. HOMAN VANDERHEIDE, Ph.D., M.D., D.O., president of the university.
A. B. WIERSMA, M.D., vice-president.
A. I. STOLK, M.D., D.O., treasurer.
J. E. LINTOTT, M.A., D.C., M.T.D., secretary.
PHILIP KOHNSTAMM, Ph.D., M.D., D.O., president of the board of regents.
F. T. DES BRISAY, B.A., LL.B., vice-president of the board of regents.
A. H. VANDERHEIDE, M.A., LL.B., D.C.L., member of the board of regents.
F. HAYMAN, M.D., LL.D., Ph.D., member of the board of regents.

Of this imposing list it will be seen that five of the eight men have "M.D." after their names. A careful search of official records shows no such individuals as licensed practitioners of medicine. Of course it is possible—and in the light of what follows it seems probable—that these enterprising diploma dispensers have seen fit to confer the degree of doctor of medicine on each other. What is the use of running a diploma mill unless you can furnish yourself with any title that may strike your fancy? And judging from the picturesque string of letters affixed to the names of the "officers and board of regents" these gentlemen have apparently availed themselves to the full of the favorable opportunity they have of accumulating "degrees."

WHAT THE "UNIVERSITY" IS

The following description of the Carnegie University is taken from the "Annual Announcement":

"Carnegie University is the oldest and most celebrated institution of learning of its kind in the United States of America. It was initiated, promoted and financed by a few of America's most prominent gentlemen in the financial as well as the professional world. These gentlemen, knowing the progress that Drugless Therapy (healing) has made in the last twenty years, and understanding the great future for this science, saw the necessity of devoting one of the Colleges of a great University to Drugless Therapy, so that those earnestly desiring to become Drugless Physicians and Bloodless Surgeons could acquire a thorough and scientific knowledge of the various sciences which constitute the natural method of healing. The University was named in honor of Carnegie, the great philanthropist, who has done so much for the dissemination and promulgation of knowledge and education."

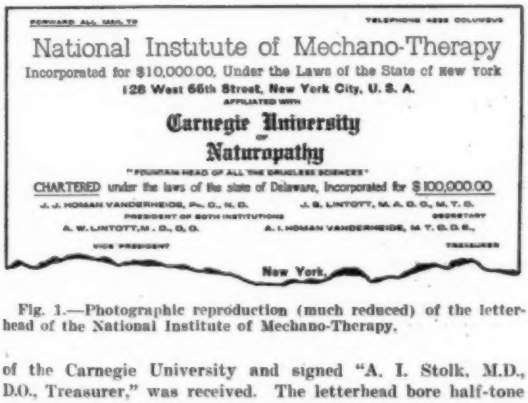
WHAT IT DOES

We learn from the same announcement that: "By virtue of the powers invested in the University by the government of the State of Delawnre, it gives instruction in all Drugless Arts, Sciences and Philosophies and in any other Art, Science or Philosophy. It also confers degrees in any Art, Science or Philosophy." Then follows a list of the numerous "degrees" conferred by this institution of learning. Here are a few:

M.D.	M.A.	D.C.
LL.D.	Sc.D.	M.T.D.
Ph.D.	D.O.	Ps.D.

AN INVESTIGATION

Being desirous of looking into the Carnegie University more thoroughly, a member of THE JOURNAL staff wrote for a catalogue. In return a five-page form-letter, on the stationery


FORWARD ALL MAIL TO

TELEPHONE 4200 COLUMBUS

National Institute of Mechano-Therapy

Incorporated for $10,000.00, Under the Laws of the State of New York

128 West 66th Street, New York City, U. S. A.

AFFILIATED WITH

Carnegie University
OF
Naturopathy

"FOUNTAIN HEAD OF ALL THE DRUGLESS SCIENCES"

CHARTERED under the laws of the state of Delaware, Incorporated for $100,000.00

J. J. HOMAN VANDERHEIDE, Ph. D., M. D. — PRESIDENT OF BOTH INSTITUTIONS

J. B. LINTOTT, M. A. C. O., M. T. D. — SECRETARY

A. W. LINTOTT, M. D., D. C. — VICE PRESIDENT

A. I. HOMAN VANDERHEIDE, M. T. D. D. S. — TREASURER

New York.

Fig. 1.—Photographic reproduction (much reduced) of the letterhead of the National Institute of Mechano-Therapy.

of the Carnegie University and signed "A. I. Stolk, M.D., D.O., Treasurer," was received. The letterhead bore half-tone pictures of Wilmington's two largest office buildings on which the words "Carnegie University" had been inserted to give the impression that this institution occupied these buildings. An "Annual Announcement" was also received (from which quotations have already been given) in which were glowingly described the possibilities of "Drugless Healing" and the wonderful financial success that would follow a "course" of instruction taken at this "most celebrated institution of learning." A number of pictures also were sent purporting to be the photographs of "Officers, Members of the Board of Regents and Professors of Carnegie University." There were photographs, too, of a handsome building in New York City that was labeled "National Institute of Mechano-Therapy, Affiliated with Carnegie University." Of course, no such lettering actually appears on this building. Fac-similes of the diplomas issued by "*Carnegiana Universitas*" were also received, showing the ornate magnificence of this "magnificently engraved" piece of "white parchment"—"19 by 24 inches." The recipient was told that whatever "course" he might take, "the degree is legal in every country on the globe and the graduates are protected by the high standing of the corporation with its immense resources."

On the receipt of this matter from the Carnegie University this—the second—letter was written:

CARNEGIE UNIVERSITY,
Wilmington, Del

CHICAGO, ILL., Oct. 24, 1911.

DR. A. I. STOLK.

Dear Sir: I have read the catalogue you sent me about mechano-therapy. Now I am soon going back to England where I expect to start an office as a "bone setter." I have had a good deal of experience over here doing massage and have also studied some medical books. Would you be willing to let me have a diploma of mechano-therapy without having to wait for the course? I haven't time to take it and I want to leave for London in two or three weeks. I will pass an examination if you want to send me the questions and I will be willing to pay for the full course without taking any of the charts, etc. Please let me know the best you can do.

Yours truly,

_____ _____

This plan to purchase a diploma outright was eagerly taken up by the "University" as the following reply shows:

Mr. _____
Chicago, Ill.

WILMINGTON, DEL., Oct. 27, 1911.

Dear Sir:—Enclosed please find examination questions which we desire you to answer at your earliest opportunity. If this examination proves to be satisfactory to us, we will grant you the degree of Doctor of Mechano-Therapy upon the conditions mentioned in your letter of October 24th.

Hoping this may be satisfactory to you, we are,

Yours very respectfully,

A. I. STOLK, M.D., D.O.,
Treasurer.

The examination questions referred to in this letter were twenty-two in number and were typewritten on a plain sheet of foolscap under the following typewritten heading:

CARNEGIE UNIVERSITY.
EXAMINATION. MECHANO THERAPY.
(Leading to the Degree of DOCTOR of Mechano Therapy)
Prepared by the BOARD OF REGENTS OF CARNEGIE UNIVERSITY

AN EXAMINATION

Lack of space prevents printing all of the questions and the answers given by the supposed seeker of a diploma. Needless to say the questions were answered in such a way as to make perfectly plain to anyone that the examinee was ignorant to a degree and was in no sense competent to treat disease. A few of the questions asked and the answers given will make this fact clear:

QUESTION: What is Histology?
ANSWER: Histology is the study of the history of the anatomy and physiology of the body.

QUESTION: What is Embryology?
ANSWER: Embryology is the study of the new-born baby and how to care for it.

QUESTION: Describe the portal circulation.
ANSWER: The portal circulation is the circulation of the chyle and chyme which is found in the stomach when the food is being digested. It then goes into the blood to build up the body.

QUESTION: Describe the fornix.
ANSWER: The fornix is that part of the throat at the back of the tonsils which is affected in catarrh. An adjustment of the vertebra of the neck will often help it.

QUESTION: What is Keratitis? Give course of treatment.
ANSWER: Keratitis is inflammation of the eye. It should be treated by manipulating the muscles and nerves of the neck and by adjusting the vertebra of the neck. Cold-water bandages may also be used.

QUESTION: Give the treatment for Iritis.
ANSWER: Iritis is also an inflammation of the eye and should be treated as described in Keratitis.

QUESTION: How would you replace a dislocated lower jaw?
ANSWER: The jaw should be pulled forward or pushed back, as the case may be, and the joint massaged and adjusted.

QUESTION: Give Pathology, Etiology, Symptoms and Treatment for Malaria.
ANSWER: Malaria is found in the South and in swampy places. The patient should be given massage to make the bowels move and the spine should be adjusted to improve the circulation. It is also better to have the patient move from a malarial place to where it is dry.

It is not necessary to have a medical education to realize that a person making such answers as those quoted above has not the knowledge of physiology and anatomy usually pos-

sessed by the average "eighth grade" public school pupil. Nevertheless, when these answers were sent in, the Carnegie University authorities decided that the person sending them had knowledge enough to be graduated, as the following letter indicates:

WILMINGTON, DEL., Nov. 4, 1911.

Mr. ————,
Chicago, Ill.

Dear Sir: We herewith have the pleasure to inform you that *you have passed your examination very satisfactorily* [Italics ours—ED.], and that the Carnegie University has conferred on you the degree of Doctor of Mechano-Therapy. The diploma will be forwarded to you on receipt of post-office money order of $50, as mentioned in your previous communication, being the cash price for the entire course.

If you think that you have not sufficient time to receive the diploma at your Chicago address, and as we presume that you will, before leaving America, arrive in New York City, you can call at the officers of the National Institute of Mechano-Therapy, 128 West Sixty-Sixth Street, New York City, and your diploma will be ready. However, if you still have time to receive the diploma, it will immediately be forwarded to you after the post-office money-order has been received by the Carnegie University. If you cannot call at the institute, we will forward you your diploma wherever you may be.

You can also communicate with us through our representative in London, Jonathan Nicholson, LL.D., M.D., 32 Highfield Hill, Upper Norwood, Surrey, England.

Hoping to hear from you as soon as possible, we are,

Yours very respectfully,

A. I. STOLK, M.D., D.O.,
Treasurer.

P. S.—The proper address of our representative in England will be forwarded to you, because he has just moved to London.

Fig. 2.—Here we have a facsimile of the "magnificently engraved diploma 19 by 24 inches, on white art parchment" granted by the National Institute of Mechano-Therapy.

WHAT IT ALL MEANS

All of which means that the Carnegie University exists for the evident purpose of selling diplomas and granting degrees to such individuals as wish to engage in the practice of "drugless healing." Whether the M.D. degree, which they claim to grant, can be purchased on the same basis, we do not know. And this parchment factory has the effrontery to make the following claim:

> "ARE OUR GRADUATES COMPETENT?
>
> "We have given so much thought and time to our system of instruction that our students, when graduated, are able to work entirely on their own responsibility and be ultra successful as Drugless Physicians, Bloodless Surgeons, Beauty Specialists and Pedic Surgeons."

Incidentally, it is worth noting that Carnegie University's London representative, Jonathan Nicholson, LL.D., M.D., is also known—unfavorably—on the other side. London *Truth*, which has exposed so many medical and pseudo-medical frauds, has called attention to Mr. Nicholson on several occasions. The following quotation from *Truth's* "Cautionary List" gives tersely and expressively that publication's opinion of the London representative of Carnegie University:

> NATIONAL COLLEGE OF ELECTRO-THERAPEUTICS, 22, Budge-row and 9, Walbrook, London, E. C.—The name under which Mr. Jonathan Nicholson practises the art and mystery of magnetic healing, and having succeeded in humbugging himself into a belief in himself, now strives to humbug others.

We have said that the answers to the "examination" questions submitted by this "diploma mill" made perfectly plain to everyone the ignorance of the individual writing them. Nevertheless only physicians can fully realize the tremendous amount of harm that might be done by an individual holding himself out as a "drugless healer" whose ignorance of anatomy and physiology is as colossal as that indicated by the "examination" referred to. Yet in many states of the Union an individual without even an elementary education and with absolutely no technical training can do business as a "drugless healer" and carry on his malpractice with impunity so far as the law is concerned. And should the machinery of the court be set in motion against him the cry of persecution is at once raised.

The time must come—and, for the safety of the public the sooner it comes the better—when an enlightened state will not issue charters indiscriminately to any group of ignorant fakers who choose to organize a "university."

Correspondence

Quinin in the Preventive Treatment of Migraine and Anaphylaxis

To the Editor:—In a paper read before the German Medical Society of New York, Feb. 18, 1908 (*Therapeutische Monatshefte*, May, 1908), I tried to establish the fact that typical attacks of migraine had their origin in the gastro-intestinal tract, and were due to auto-intoxication caused by the absorption of certain albuminoids. At the time the tendency was against my hypothesis, but subsequent developments in the causation of a varied series of vague diseased conditions are now being referred to as an outcome of the absorption of certain albuminoids giving rise to the condition now known as anaphylaxis, to which class the syndrome known as migraine or hemicrania is now referred. I myself have been subject to such attacks; during an attack of gastro-intestinal disturbance, certain food products which I can at other times eat with impunity immediately cause an attack of migraine. This led me to attempt to find some medicament which would abort such attacks. Once an attack has reached the severe stage of pain, no abortive treatment is of any avail; only palliative measures are useful. (These measures are described in detail in the above-mentioned paper.) During the early stages, however, in the time of the gastro-intestinal disturbance, and during the stage of scotoma, quinin is the remedy *par excellence*. I have found, after having tried all the various forms of treatment, in the early stages, that quinin is the most effective and is almost specific. But it must be given early, at the onset, and in sufficiently large dose. I have never seen any ill effects from quinin thus administered. I have usually given 0.5 gm. quinin chlorid for an adult, in a wafer or in two capsules, 0.25 gm. each, and I have rarely found it necessary to repeat the dose. I wish to call attention to the employment of quinin in other conditions considered as anaphylactic, e. g., urticaria of all grades; others have also found it useful in this condition. In serum exanthemata I have used it in two cases, but as they were of rather mild character, I cannot say positively that the rapid improvement was due to quinin alone. In hay-fever it has been of distinct advantage, though I have always used it in conjunction with epinephrin applied locally.

A. HERZFELD, New York.

Politics and Public Health

To the Editor:—The editorial in THE JOURNAL, November 4, p. 1542, in which was stated that Dr. Probst had been removed from the secretaryship of the Ohio State Board of Health for political reasons, is wrong in two respects.

Dr. Probst was not removed at all, but resigned voluntarily, and the reasons which he gave the board were not, as you state, political, but that he thought he had served the state of Ohio long enough, that he was anxious to take several months' rest in Europe, and finally, that he wished to devote the remainder of his active experience to the building up of his medical practice.

Other reasons than these have been given by some of Dr. Probst's friends and by the Republican press in and out of the state, but until Dr. Probst returns from Europe and personally confirms these reasons, they cannot very well be discussed.

JOHN W. HILL, Cincinnati.
Member of the Board.

Servetus and the Pulmonary Circulation

To the Editor:—Your Paris correspondent, in his letter of October 20 (THE JOURNAL, Nov. 11, 1911, p. 1627), in regard to the dedication of a monument to Michael Servetus at Vienne, France, reports Dr. Charles Richet, representing the Faculté de médecine de Paris at the ceremony, as saying that "the divination of the pulmonary circulation by Servetus, who unlike Harvey, had done no vivisection, and who, unlike Vesalius, had done no dissection, was unparalleled—almost a miracle." It seems strange that Professor Richet should have erred in his statement that Servetus "had done no dissection." On the contrary, Servetus' biographers tell us that he studied medicine at Paris under the celebrated Günther and succeeded Vesalius as Günther's assistant. His preceptor paid high tribute to his culture and especially his skill in dissecting and to his knowledge of Galen, "scarcely second to anyone." It is certainly rational to attribute Servetus' concept and description of the pulmonary circulation to his anatomic dissections rather than to an "almost miraculous" divination.

ALBERT H. BURR, M.D., Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

REACTION OF POTASSIUM ARSENITE AND IODIN

To the Editor:—Please tell me the chemical reaction and new compounds formed, if any, in the following formula:

Liq. potassii arsenitis		
Tinct. iodi		
Phenolis	āā	♏ xvj
Aquæ	q. s. ad	℥j

R. GOLDING BLACKBURN, Whitmire, S. C.

ANSWER.—In alkaline solution, iodin converts arsenites to arsenates, forms tri-iodophenol from phenol, and iodoform from alcohol, the latter two reactions taking place ordinarily in warm solutions. Experiments made by our chemists show that, in the present instance, only the arsenite is affected. The acid formed in the oxidation of the arsenite neutralizes the alkali, the solution becomes acid in reaction, and hence the chemical reaction stops, even before the arsenite is all oxidized. This was shown by the presence in the finished prescription of both an arsenite and an arsenate and by the facts that the solution was acid in reaction and contained free iodin. Assuming that solution of potassium arsenite (Fowler's solution) contains potassium arsenite (KH_2AsO_3) and potassium carbonate (K_2CO_3), the reactions which occur may be represented thus:

$$2KH_2AsO_3 + 2I_2 + 2H_2O \rightleftarrows K_2HAsO_4 + H_3AsO_4 + 4HI$$
$$2HI + K_2CO_3 \rightarrow 2KI + CO_2 + H_2O$$
$$H_3AsO_4 + K_2CO_3 \rightarrow K_2HAsO_4 + CO_2 + H_2O$$

It would appear, then, that the only new compound which is formed is the arsenate produced by the oxidation of the trivalent arsenic in Fowler's solution.

On standing, the solution became lighter in color and after a week the free iodin had almost completely disappeared. The solution still contained arsenic in both the trivalent and the pentavalent condition. The chemists are unable to explain the reaction which caused the disappearance of the free iodin on standing.

LARVÆ IN THE EAR

To the Editor:—In two letters in THE JOURNAL (Oct. 7, 1911, p. 1207, and Oct. 21, 1911, p. 1385, respectively) accounts are given of the presence of maggots in the ear-passages. The occurrence of larvæ of various flies in the external auditory passages is not uncommon, especially in tropical countries. The following case came under my observation at Trinidad, West Indies: A male East Indian, aged about 60, complained of intense pain in and discharge from the ear. The whole of the auditory meatus was found to be completely filled with a moving, seething mass of maggots. With a pair of forceps I removed as many as thirty-three of these insects from the ear; many of them were already dead. The patient made an uninterrupted recovery. I was unable to ascertain to what species of fly these larvæ belonged.

FERNAND L. DE VERTEUIL, Vancouver, B. C.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Nov. 11, 1911.

Baker, Charles L., M.R.C., November 3, relieved from duty in the Philippine Islands and ordered to Fort Ruger, H. T., for duty.

Davis, William T., captain, November 3, detailed to represent the Medical Department of the Army at the Clinical Congress of Surgeons of North America, Philadelphia, Nov. 6 to 7, 1911, instead of Major Thomas L. Rhoads and Captain William L. Keller, Medical Corps.

Strong, Francis X., lieut., November 3, relieved from duty with Field Hospital and Ambulance Company No. 2 and ordered to Jefferson Barracks, Mo., for duty.

Lowe, Thomas S., M.R.C., November 3, ordered to accompany 24th Infantry from Madison Barracks, N. Y., to Philippine Islands on Dec. 5, 1911, and then report to commanding general, Philippines division, for assignment to duty.

Clark, John A., captain, November 3, orders relieving him from duty at Plattsburg Barracks, N. Y., and ordering him to Fort Wadsworth, N. Y., for duty is revoked.

Humphreys, H. G., captain, November 3, orders relieving him from duty at Fort Wadsworth, N. Y., and ordered to Plattsburg Barracks, N. Y., for duty is revoked.

Little, William L., captain, November 3, relieved from duty at Fort Adams, R. I., and ordered to Fort Wadsworth, N. Y., for duty.

Humphreys, M. G., captain, November 3, relieved from duty at Fort Wadsworth, N. Y., and ordered to Fort Adams, R. I., for duty.

Jones, Harold W., captain, November 4, relieved from duty at Walter Reed General Hospital, Takoma Park, D. C., and will proceed to Jackson Barracks, La., for duty.

Coffin, Jacob M., captain, November 4, on expiration of present leave of absence will proceed to Fort Riley, Kan., for duty.

Waring, John B. H., lieut., November 6, granted three months' leave of absence on surgeon's certificate of disability.

Lyster, William J. L., major, November 7, ordered to Army and Navy General Hospital, Hot Springs, Ark., for observation and treatment.

Hanson, Louis H., captain, November 7, granted three months and twenty days' leave of absence, with permission to go beyond the sea.

Carr, William B., lieut., November 8, relieved from duty at Fort Monroe, Va., and ordered to Fort Washington, Md., for duty.

Capen, Nelson, captain, November 8, granted leave of absence for one month and five days.

Durnall, Moses H., M.R.C., November 8, relieved from duty at Fort Washington, Md., and ordered to Fort Hunt, Va., for duty.

Jackson, Thomas W., M.R.C., November 8, relieved from duty at Fort Hunt, Va., and ordered to Fort Washington, Md., for duty.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Nov. 8, 1911.

Eager, J. M., surgeon, directed to proceed from Marseilles, France, to Genoa, Italy, and Havre, France, and on completion of duty to return to Portland, Me.

Lumsden, L. L., P. A. surgeon, directed to proceed to Lincoln, on the request of the Governor of Nebraska, to investigate an outbreak of typhoid fever.

Anderson, J. F., P. A. surgeon, detailed to represent the Service at the meeting of the American Public Health Association to be held at Havana, Cuba, Dec. 4-9, 1911.

McKeon, F. H., P. A. surgeon, relieved from duty on Revenue Cutter *Rush* and directed to proceed to San Francisco and report to Passed Assistant Surgeon M. W. Glover for temporary duty.

Krulish, Emil, asst. surgeon, relieved from duty at Ellis Island, N. Y., and directed to proceed to Galveston, Tex., for duty in the medical examination of arriving aliens.

Duffy, B. J., asst. surgeon, relieved from duty on Revenue Cutter *Seneca* and directed to report to the medical officer in command at the Marine Hospital, Stapleton, N. Y., for duty and assignment to quarters.

Kucera, J. F., A. A. surgeon, granted thirty days' leave of absence from Oct. 30, 1911.

Miranda, R. U. Lange, A. A. surgeon, granted one month's leave of absence, with pay, from Aug. 12, 1911, and one month's leave of absence, without pay, from Sept. 12, 1911.

Small, E. M., A. A. surgeon, granted thirty days' extension of annual leave of absence, from Sept. 22, 1911, on account of sickness.

Medical Economics

HOW MEDICAL LEADERS CAN BE PUBLIC LEADERS

An open letter by Dr. John A. Wyeth, which appeared in *Harper's Weekly*, November 4, is an illustration of the way in which the recognized leaders in the medical profession can help to educate the people and to mold public opinion. If the leaders in our profession, in every state, city and town, will follow Dr. Wyeth's example and let the people know the truth, as to the possibilities of preventing and controlling disease, the public will speedily understand and appreciate the efforts of physicians to improve health conditions. Let the people know the truth, and the result will not be long in doubt. If Dr. Wyeth's efforts could be duplicated in every town and country, the result in public enlightenment would be beyond belief.

After referring to an editorial in *Harper's Weekly* for October 14, entitled "Why Not a National Department of Health with a Physician as Secretary in the Cabinet?" Dr. Wyeth says:

"If we can afford a War Department to look after our soldiers, a Navy Department for our sailors, and a Department of Agriculture to protect our cattle and hogs, we surely can afford a department the business of which would be to guard the health and lives of the children, women and men of the nation. . . . Boundary lines offer no barriers to epidemics. Like commerce, they are interstate, and while the rights of the states should be respected in leaving them the fullest liberty to regulate affairs which interest them alone, a central department at Washington should have, and should use, the authority to take control in all emergencies where the general welfare is concerned."

Regarding the rôle played by the sanitarian in the Canal Zone, Dr. Wyeth asserts that the achievements of our profession have made possible the building of the Panama Canal, saved thousands of lives and millions of dollars in its construction. Never in history, he says, has there been such an object-lesson of the value of sanitation:

"The discovery that the mosquito is the carrier and inoculator of the germs of malaria and yellow fever opened the tropics to the white race, and assured the completion of the greatest project ever undertaken by human hands. There has not been a case of yellow fever in six years in the Canal Zone, and the death-rate among the thousands of white men, women and children living there for all these years is lower than in the city of New York. . . . It is a fact—and our people should know it—that our earlier efforts in Panama failed for the reason that the direction of medical affairs was left at first to red-tape and a mixed commission; and it was not until the chief sanitary officer—an army surgeon—was placed in autocratic control of medical affairs, that the satisfactory results were seen."

After reviewing the results of typhoid vaccination in the army, Dr. Wyeth says that only those who have lived through any of the epidemics of cholera which have visited our country will appreciate the different conditions which now prevail:

"During the summer just past, for the first time since 1892, the city authorities had to deal with Asiatic cholera. In addition to the cases coming in on the steamship and those which developed on Swinburne Island, three cases occurred within the jurisdiction of the Board of Health of the city. The discovery of the germs of this disease, and of the means of preventing its spread, enabled the authorities to stamp it out at once, and without alarm or panic!"

He concludes his letter with the statement that the American Medical Association is carrying on a campaign of education with the people, their patients, as to the necessity of this great reform, and that neither politics nor prejudice can defeat their efforts. If a few physicians in every county of every state will write to their local newspapers, explaining the efforts of work and physicians, the public will understand the issue and will speedily settle it. The question of advanced health legislation is not one for partisan feeling or bitterness. It calls for free discussion, unprejudiced consideration and —above all—for education, and then more education

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

[NOTE.—The pamphlets containing the outline of the postgraduate study course for county societies for the coming year are ready for distribution. Secretaries of county societies can secure supplies by writing to the Secretary, Council on Health and Public Instruction, American Medical Association, 535 Dearborn Ave., Chicago.]

Third Month—Third Weekly Meeting

ACUTE RHEUMATISM IN CHILDHOOD[1]

(a) Insidious onset, anemia, lassitude, epistaxis, etc.
(b) Varied manifestations, chorea, arthritis, tonsillitis, carditis, skin lesions, pulmonary complications.
(c) Frequency of cardiac complications.[2]
(d) Articular complications.
(e) Nervous symptoms.
(f) Nodules.
(g) Anemia.

MUSCULAR RHEUMATISM

CLINICAL VARIETIES

(1) Lumbago, onset, pain, temperature, pathology.
(2) Pleurodynia. Muscles involved, pain, diagnosis.
(3) Torticollis. Occurrence, pathology, pain, diagnosis.
(4) Myalgias, abdominal, dorsal, cephalic, etc.

TREATMENT: Relief of pain, analgesics, morphia. Electricity. Local applications. Cupping. Plasters. "Electric belts" and other fake remedies in rheumatism.

CHRONIC ARTICULAR RHEUMATISM

PATHOLOGY: Synovial membranes, capsule, ligaments, cartilages, tendon sheaths, contractions, deformity, muscular atrophy.

SYMPTOMS: Joints involved, swelling, pain, tenderness physical signs. General condition. Cardiac complications.

TREATMENT: Prophylactic—Change of climate and occupation. Hydrotherapy. Counter-irritation.

Internal—Iodin, physiologic and therapeutic action. Guaiacum, therapeutic action.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, December 5-8. Sec., Dr. Charles L. Tisdale, 929 Butler Building, San Francisco.

DELAWARE: State Society and Homeopathic, Dover and Wilmington, December 12. Secretary of the Medical Council, Dr. Henry W. Briggs, Wilmington.

FLORIDA: Eclectic, 1805 Florida Avenue, Tampa, December 4. Sec., Dr. Hiram J. Hampton.

KENTUCKY: The Armory, Louisville, December 19-21. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: Regular, 1211 Cathedral Street, Baltimore, December 12. Sec., Dr. J. McP. Scott, Hagerstown.

OHIO: Columbus, December 5-7. Sec., Dr. George H. Matson, State House.

PENNSYLVANIA: Regular, Homeopathic and Eclectic, Philadelphia and Harrisburg, December 12-15. Secretary of the Medical Council, Mr. Nathan C. Schaeffer, Harrisburg.

VIRGINIA: Lynchburg, December 19-22. Sec., Dr. R. S. Martin, Stuart.

Idaho October Report

Dr. O. J. Allen, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Wallace, Oct. 3-4, 1911. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 22, of whom 16 passed and 6 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1911)	75
George Washington University		(1904)	80
Northwestern Univ. Med. School	(1909) 85;	(1910) 75,	77, 80
Rush Medical College		(1897)	75
Bennett Medical College		(1874)	75
University of Michigan, Dept. of Med. and Surg.		(1909)	78, 82

1. McDonough: New York Med. Jour., 1906, lxxxiii, 346. Dunn: THE JOURNAL A. M. A., 1907, xlviii, 493.
2. International Clinics, 1903, vols. ii and iii.

Creighton Medical College	(1907)	78
New York University Medical College	(1898)	83
Long Island College Hospital	(1880)	82
Eclectic Medical College, Cincinnati	(1908)	84
Jefferson Medical College	(1906)	76
McGill University, Quebec	(1908)	84
FAILED		
Northwestern Univ. Med. School	(1907) 70; (1910)	72
Illinois Medical College, Chicago	(1901)	68
Chicago College of Medicine and Surgery	(1909)	69
St. Louis College of Physicians and Surgeons	(1911)	67
University of Toronto, Ontario	(1895)	*42

* Did not complete examination on account of illness.

Iowa September Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Sept. 19-21, 1911. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 12, of whom 11 passed and 1 failed. The following colleges were represented:

College	PASSED Year Grad.	Per Cent.
Northwestern University Medical School	(1910) 84.2; (1911)	88, 88.3.
American Medical Missionary College	(1910)	83.6
Sioux City College of Medicine	(1909)	84.6
University of Louisville	(1910)	81.3
Maryland Medical College	(1908)	79
Hahnemann Med. Coll. and Hospital, Philadelphia	(1911) 82.6,	88
University of Pittsburgh	(1910)	80.1
University of Toronto, Ontario	(1911)	81.5
FAILED		
Chicago College of Medicine and Surgery	(1911)	*78

* Fell below 60 in pathology.

Iowa October Reciprocity Report

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that at the meeting held at Des Moines, Oct. 25, 1911, 24 candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Reciprocity with
Hahnemann Medical College and Hospital, Chicago	(1882)	Nebraska; (1910) Illinois.
College of Physicians and Surgeons, Chicago	(1910)	Illinois
Northwestern University Medical School	(1900)	Wisconsin; (1902) (2, 1909) (1910) Illinois.
Rush Medical College	(1910)	Illinois
Chicago College of Medicine and Surgery	(1909)	Illinois
Keokuk Med. Coll., Coll. of P. and S.	(1900)	Nebraska
Eclectic Medical College of Indiana	(1905)	Indiana
University of Louisville	(1903)	Indiana; (1911) Kentucky; (1911) Illinois.
Univ. of Michigan, Dept. of Med. and Surg.	(1906)	Michigan
St. Louis College of Physicians and Surgeons	(1909)	Missouri
Creighton Medical College	(1906) (3, 1910) (2, 1911)	Nebraska
Eclectic Med. Coll. of the City of New York	(1891)	Michigan

Wisconsin July Report

Dr. John M. Beffel, secretary of the Wisconsin State Board of Medical Examiners, reports the written examination held at Madison, July 11-13, 1911. The number of subjects examined in was 22; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 36, of whom 30 passed, including 7 osteopaths, and 6 failed, including 1 osteopath. The following colleges were represented:

College	PASSED Year Grad.	Per Cent.
Northwestern University Medical School	(1893) 82; (1911)	79, 82, 83, 83, 84, 84, 85.
Bennett Medical College	(1911)	78, 82
College of Physicians and Surgeons, Chicago	(1910) 84; (1911)	79, 80, 81.
University of Louisville	(1911)	76, 77
Johns Hopkins University	(1911)	88
Columbia Univ., Coll. of P. and S.	(1910)	82
Western Reserve University	(1911)	81
University of Pennsylvania	(1908) 83; (1911)	85
Marquette University	(1909) 75; (1911)	75
FAILED		
Indiana University	(1910)	71
Marquette University	(1911)	73
Univ. of Athens, Greece	(1903) 71; (1910) 72; (1911)	72

Book Notices

LATERAL CURVATURE OF THE SPINE AND FLAT-FOOT, AND THEIR TREATMENT BY EXERCISES. J. S. Kellett Smith, F.R.C.S., Late Demonstrator of Anatomy at University College, Liverpool, etc. Cloth. Price, $2 net. Pp. 137, with 82 illustrations. New York: William Wood & Co., 1911.

The most notable thing in this book is the explanation of the uniform rotation of the vertebræ in scoliosis so that the sides of vertebræ toward a convexity of the lateral curve are twisted backward. This the author explains by the necessary elevation of the ventral ends of the ribs on the side of the convexity, and the consequent increase of anteroposterior distance between the ends of each rib that is thus elevated. After the limits of looseness and elasticity are reached, this increasing anteroposterior separation of the rib ends, the author credibly asserts, forces the corresponding sides of the vertebræ backward, i. e., rotates them. This explanation applies of course only to the dorsal, rib-bearing part of the spine; the author therefore considers the dorsal rotation the primary one, and the lumbar rotation, which he does not explain, he regards as secondary. Accordingly, he believes that the dorsal deformity should be the special object in corrective exercises and measures. Another new point is the explanation of some cases of weak ankles in children by the failure of the external malleolus to grow downward from its fetal position on a level with the internal malleolus.

The exercises are clearly described and illustrated, and their rationale discussed. Hygienic measures and certain drugs are considered. The author states that a scoliotic patient being treated in this way should give his full time to it for three to six months and six months more to half-training. The book is not intended to consider severe structural cases of scoliosis. It does not, however, refer to the growing proof that many cases are due to congenital imperfection of the vertebræ, and so must in many instances be dealt with as severe from the first appearance of the deformity.

The book is a welcome justification for, and guide in, the use of exercises in the treatment of scoliosis and flat-foot, and a reproof of the needless (and when needless always harmful) use of artificial support.

THE PREVENTION OF MALARIA. By Ronald Ross, D.P.H., F.R.C.S., D.Sc., Nobel Laureate. With Contributions by Various Men. Cloth. Price, $5 net. Pp. 600, with illustrations. New York: E. P. Dutton & Co., 1910.

To every specialist the particular subject in which he is interested acquires great importance, so that we naturally expect Dr. Ross to estimate highly the importance of malaria. Still we are not accustomed to yield it first place in professional regard, as he does when he says that "malarial fever is perhaps the most important of human diseases." This, however, he supports with the statement that in India, it is estimated that the average annual death-rate from this disease is 1,130,000 persons. Ross believes that malaria has profoundly modified the world's history by rendering the tropics unsuitable for the full development of civilization and that it therefore becomes a political disease, affecting the welfare of whole countries, and one whose prevention should be an important branch of public administration. The author has adopted the plan of giving a general summary of the history and facts regarding the causation and prevention of malaria and then incorporating the contributions of authorities for different countries. These contributions number twenty-one, covering southern Europe, the United States and other American countries and the European possessions in Asia and Africa.

In this connection it may be noted that the communication of Dr. Edmond Sergent is entirely in French with no translation. This is a feature which might occasion some annoyance to such readers as are not familiar with the French language.

The special contribution for the United States is from Prof. L. O. Howard, chief of the Bureau of Entomology at Washington. He describes the work that has been done in a sporadic way by scattered associations and communities, the official work of the State of New Jersey, and the educational work carried on among the school children in San Antonio, Texas. Professor Howard suggests that while malaria tends to dis-

appear in consequence of the drainage of swamp lands, the conditions of improved civilization bring about steadily increased opportunities for anopheles to breed, as by the construction of irrigation ditches, railroad embankments, mill dams, etc., so that it would not be surprising if malaria were increasing rather than decreasing in the United States. It would seem that the mosquito crusade is bound to become an extremely important matter within the next few years.

The campaign against malaria in Panama is made the subject of two communications, one by Colonel W. C. Gorgas, and the other by J. A. Le Prince, Chief Sanitary Inspector, Panama Canal Zone. Colonel Gorgas expresses the view that the work already done at Ismailia, Havana, Panama, and at other places has demonstrated that malaria can be eventually banished from the worst places in the tropics at no very great expense. He thinks that the individual farmer can protect himself from tropical malaria for less than what he expends in protecting himself against the cold of Dakota or Manitoba.

W. T. Prout in describing antimalarial measures in Jamaica states that deaths from malaria represent nearly one-fifth of the total deaths. Hitherto little has been done to prevent the disease, but as the result of an expedition from the Liverpool School of Tropical Medicine, public opinion has been aroused and an appropriation of $25,000 has been made to carry on the work. The efforts to prevent malaria in British tropical territory receive extensive notice. This part of the work is illustrated by a number of plates. "The Prevention of Malaria in War" is the subject of a very practical chapter by Colonel C. H. Melville.

Altogether the work contains a large amount of information involving painstaking and accurate research; the book is recommended to sanitarians and to all who need to inform themselves on this important department of preventive medicine.

Special Message of Governor Herbert S. Hadley Regarding the Control and Prevention of Tuberculosis, Together with a Report of the Voluntary Commission to the Forty-Sixth General Assembly, 1911. J. Hal. Lynch, Secretary, 625 Locust St., St. Louis. Paper. Pp. 99.

In July, 1910, Gov. Herbert S. Hadley of Missouri asked a number of men and women who had been prominent in the investigation of public questions to serve as a voluntary committee to investigate the prevalence of tuberculosis in the state of Missouri, the causes of the disease and the best method of controlling it. The report, transmitted to the legislature in a special message, was printed by the state. It is in three parts; viz., a report on the morbidity and mortality caused by this disease; an estimate of the economic loss caused by it; and recommendations as to its prevention and cure. As to its prevalence, the committee reports from 5,000 to 5,500 deaths per year from this disease in Missouri. In the cities the death-rate was 173 per 100,000. In small towns and country districts, it was estimated at one death in every six, making the average for the state one in every ten deaths. It was found impossible to estimate accurately the number of cases of the disease, 18,000 being the minimum and 30,000 the maximum. The estimated loss through this disease was $31,000,000 per year. The committee recommended enlarged powers for the state board of health; the appointment of a tuberculosis commission; the passage of an enabling act for the erection and maintenance of county sanitariums; segregation of tuberculous inmates of state institutions and prisons; and the passage of a state housing law.

Nature Sketches in Temperate America. A Series of Sketches and a Popular Account of Insects, Birds, and Plants, Treated from Some Aspects of Their Evolution and Ecological Relations. By Joseph Lane Hancock, M.D., F.E.S. Cloth. Price, $2.75 net. Pp. 451, with 227 illustrations. Chicago: A. C. McClurg & Co., 1911.

By sketches of insect, bird and plant life, Dr. Hancock has endeavored to illustrate, in its philosophic aspects, the doctrine of the organic evolution which has brought them to their present form, and also to throw some light on their present ecologic conditions. His sketches and studies are based on personal observation and are presented with a rare combination of literary charm and simplicity with sound scientific information. Dr. Hancock's frank interest and joy in his subject is infectious, and makes the book one which may be read with entertainment and profit. The book is profusely illustrated with photographs and sketches by the author.

Medicolegal

Validity of Provision for Medical Examination and Treatment of Prostitutes

(*People vs. Fox* (*N. Y.*), *129 N. Y. S.* 646)

The First Appellate Division of the Supreme Court of New York holds constitutional the enactment of that state providing for the medical examination and treatment of prostitutes. This provides that they shall, after conviction as vagrants or disorderly persons, be taken to a room adjacent to the court-room, and there be physically examined by a woman physician of the department of health detailed for that purpose. After such examination, the physician making the same shall promptly prepare and sign a written report to the court of the prisoner's physical condition, and if it thereby appears that the prisoner is afflicted with any venereal disease, which is contagious, infectious or communicable, the magistrate shall commit her to a public hospital having a ward or wards for the treatment of the disease with which she is afflicted, for detention and treatment, etc.

The lower court held that this act violated the constitution, in that it directed the detention of the accused without due process of law, in that the nature of the sentence after conviction was made to depend on the report of a physical examination without an opportunity for a hearing on the facts entering into the report. But the Appellate Division thinks that a construction can be put on the statute which will save it. It says that it would not be said that a person who had contracted a contagious or infectious disease in the practice of drunkenness and debauchery requiring charitable aid to restore him to health should be subjected to punishment for his condition, but rather that medical assistance should be extended and his reformation attempted; yet by the statute such a person is a vagrant. It is recognized by those who have made a study of criminology that prostitution is evidence of insanity or degeneracy, and the offenses or conditions specified in these sections require more the supervision of the health and reformatory authorities of the state than commitment to penal institutions. The detention of a person within these provisions of the statute is not so much a punishment for a crime as a means for the reformation or protection of the individual who has become a vagrant or disorderly person and for the conservation of the public health, and the jurisdiction given to the courts of inferior criminal jurisdiction over vagrants and disorderly persons is therefore more reformatory than penal. When a person is brought before a judicial tribunal charged with this condition, he is to be subjected to such detention or treatment as will be best calculated to accomplish the end in view, and the statute should be considered in view of what seems to have been the evident intention of the legislature in enacting the provisions in question.

Certainly, if it had appeared that the accused was suffering from small-pox, cholera, or typhus fever or any other infectious disease, the court would not have been bound, nor would it have been justified, in committing her to a public institution which would endanger the lives of all its inmates, or in discharging the prisoner so infected to communicate the disease to all of the inhabitants with whom she should come into contact. The nature of venereal diseases is such that the result of infection is more serious than of the ordinary contagious or infectious diseases that are so carefully guarded against. To deny the power of the legislature to provide for the isolation or detention of persons suffering from a venereal disease until cured, or until the danger of infection has passed, would prevent the health authorities from removing from a crowded tenement house a person suffering from small-pox, scarlet fever, or tuberculosis, or the quarantine authorities from removing to a hospital a passenger arriving at a port suffering from cholera or plague—precautions that have always been recognized as within the police power and justified by the danger of contagion from those suffering from such diseases.

There is nothing in this statute which in terms makes the report of a physician binding on a magistrate, and nothing

which prevents a magistrate from hearing testimony as to the prisoner's condition, or from determining the question as to her condition contrary to the report of the physician. It is true that the mandatory word "shall" is used rather than the permissive word "may," or "has authority to" commit. But the instances are many in which courts have treated the mandatory word as merely permissive when necessary to sustain an act or accomplish the purpose which was clearly intended.

Considering all the provisions of this article of the statute, it seems to the court that they are provisions for the health of the community, and were intended to ameliorate the condition of one suffering from one of the most terrible diseases, and to protect the community from infection.

Then, the objection was made to this act that it relates to women only, and not to men, who are suffering from these diseases; but it was clearly a question for the legislature to say whether the public interests or the public health required that a woman afflicted with a venereal disease should be treated differently from a man. Moreover, public prostitution applies only to women, and every person convicted of public prostitution is within the act. Nor does the court think that this can be said to be an unreasonable exercise of the police power.

Large Damages Approved for Personal Injuries

(Zibbell vs. Southern Pacific Co. (Cal.), 116 Pac. R. 513)

The Supreme Court of California affirms in this case a judgment for the plaintiff for $70,000 for damages for personal injuries. The jury's verdict in favor of the plaintiff was for $100,000, but from that $30,000 was remitted. At the time of his injury the plaintiff was 27 years old, in perfect health, and earning about $2,500 a year in the breeding and training of horses. By the accident his right heel was crushed and torn to such an extent as almost to sever it from the foot. His right leg was fractured between the knee and ankle, and the flesh on that leg between the thigh and ankle was torn, cut, bruised and lacerated. His back, sides and shoulders, face and head were cut, bruised and wounded, and he sustained a severe nervous shock. Moreover, by reason of his injuries his left arm had to be amputated below the shoulder, his right hand at the wrist, and his left foot a short distance above the ankle. So the court declares that, while the damages awarded in this case were very great, the shocking character of the injuries, the loss of both arms and one leg, the permanent loss of earning capacity, the inevitable disabilities and the suffering endured, and necessarily to be endured for more than 38 years, which the mortality tables showed was the expectancy of his life, presented a case in which the injuries were as grave as the damages great, or, at least, a case in which there was no such marked disproportion between the character of the injuries and the award made for them as to suggest at once that the award was influenced by prejudice, passion or corruption.

Society Proceedings

COMING MEETINGS

American Physiological Society, Baltimore, Dec. 27-30.
American Public Health Association, Havana, Cuba, Dec. 4-9.
Southern Surg. and Gynecol. Assn., Washington, D. C., Dec. 12-14.
Western Surg. and Gynecol. Assn., Kansas City, Mo., Dec. 18-19.

MINNESOTA STATE MEDICAL ASSOCIATION

Forty-Third Annual Meeting, held at St. Paul, Oct. 4-6, 1911

The President, DR. J. W. ROBERTSON, Litchfield, in the Chair

A list of the officers elected was published in THE JOURNAL, Oct. 14, 1911, p. 1296.

Medicine in Minnesota

DR. J. W. ROBERTSON, Litchfield: It seems to be the consensus of opinion among the members of the profession in Minnesota that medical education shall consist of, first, graduation from a state high school; second, two years in science and arts in some college or university; third, four years in the study of medicine; fourth, one year in hospital training. I think that this course of study will meet the approval of a large majority of the medical men of the state. I also believe that it is to the best interests of humanity that we have a physician in every county of the state to be supervisor of health in schools so that the many abnormalities and physical defects of children can be observed, tabulated and treated during the growing period of childhood.

Carcinoma of the Lip, Mouth and Pharynx

DR. E. H. BECKMAN, Rochester: Of 210 patients operated on for carcinoma of the lip during the past six years, only fifty-two presented themselves within six months of the beginning of the disease. The extensive "block dissection" of Crile should be done at an early period in the disease before glandular involvement has taken place. We have performed 25 "block dissections" in the past three years with no operative mortality, so that the operation is not so dangerous as at first supposed. Better results in the treatment of carcinoma of the lips, mouth and pharynx seem to lie in a realization of the hope for an earlier diagnosis and a more extensive removal of the lymphatic glands into which the area of the cancer drains.

Carcinoma of the Gastro-Intestinal Tract

DR. WILLIAM J. MAYO, Rochester: From Oct. 1, 1897, to Oct. 1, 1911, 1,230 patients with carcinoma of the gastro-intestinal tract were operated on at St. Mary's Hospital. Of these 848 involved the stomach, and the radical operation was done in 296, or 34.9 per cent. of the cases. The mortality is 5 to 8 per cent. at present. Statistics in this series show that over 25 per cent. of patients who recovered from the operation and whose present condition is known, are alive and well over five years. There were fourteen cases of cancer of the small intestine, and five, or 35.7 per cent., were submitted to radical operation. Of the 214 cases of cancer of the large intestine nearly three-fourths were operated on radically. Fifty per cent. of those who recovered from the operation and whose present condition is known, are alive and well over five years. The operative mortality in these cases is now less than 10 per cent. Thirty per cent. of the 163 patients with cancer of the rectum, who recovered from the operation and whose present condition is known, are alive and well over five years. The mortality is now less than 10 per cent. Cancer, as cancer in the stomach, does not early produce definite symptoms; only when its situation makes a palpable tumor, or causes obstruction, can a probable diagnosis be made in the beginning of the disease. Malignant disease in any part of the large intestine proximal to the middle of the transverse colon is best treated by removal of all the large intestine up to the growth, doing ileocolostomy, beyond the middle of transverse colon resection in continuity. In cases of cancer of the ampulla of the rectum, a permanent colostomy should be made at the primary operation, and at a second operation after the lower segment has been properly cleansed, the entire rectum should be removed from behind. This procedure gives the patient moderate control and the best chance for a permanent cure. For high rectal or recto-sigmoid cancer the abdominal combined method is preferable. The perineal operation should be reserved for cancer of the anal region. In five instances we have discovered rectal cancer early enough to permit a purely local operation. The pessimism of the medical profession as regards malignant disease of the gastro-intestinal tract is not justified by the facts. Failure to make a diagnosis while the disease is still local, and not any peculiar malignant tendencies in the presence itself, accounts for the fatal character of cancer in this region. Lack of examination rather than lack of knowledge is responsible for mistakes in diagnosis.

DISCUSSION

DR. J. E. MOORE, Minneapolis: I heartily endorse the principles laid down and the treatment advocated in Dr. Beckman's paper. The erroneous opinion has widely prevailed that carcinoma of the face is not so malignant as in other parts of the body, and that radical treatment is not necessary. This is due to the fact that cancer of the face is recognized earlier than in any other part of the body, and earlier operations have been performed. This strengthens the contention of the surgeon that carcinoma is originally a local disease. Fortunately for

the surgeon and humanity, carcinoma of the small intestine is comparatively rare, for results of surgical intervention are not nearly so good here as in other parts of the intestines. The mortality of carcinoma of the stomach without operation is 100 per cent., and if, as Dr. Mayo has demonstrated, 25 per cent. can be saved by operation, it surely requires no argument to establish its value. Carcinoma of the large intestine is an encouraging field. The diagnosis is not so difficult, and results are remarkably good. The large bowel is remarkably tolerant of surgery. There is one point made by Dr. Mayo that I wish to endorse most emphatically, because all surgeons do not agree with him, and that is in reference to the value of colostomy in carcinoma of the rectum. This comparatively simple operation gives immediate relief and enables us to perform radical operations on the lower bowel that we could not do otherwise.

I have patients living and well to-day on whom I performed colostomy fifteen years or more ago who could not have been saved in any other way. There is another point in this paper that should encourage those who are disposed to be pessimistic on this subject, and that is the large percentage of tumors of the cecum and sigmoid presumably malignant that prove to be benign when put under the microscope.

Visceroptosis

DR. LEROY CRUMMER, Omaha: This is a condition and not a disease, symptoms occurring in this condition are dependent on changes in function and not on changes in structure. The physical stigmata are the phthisical chest, the long abdomen and the narrow pelvis. On abdominal examination, the colon can be palpated as a narrow, tender cord in more or less of its entire extent from the cecum to the rectum. The right kidney can always be palpated and generally the left. The stomach on inflation is found vertical and not dilated. These signs are found in the routine examination in the large percentage of women, many of whom present absolutely no symptoms of any kind.

Following, however, a period of stress with its attendant malnutrition and loss of weight, the symptoms become manifold. The usual symptoms which first present themselves are in the stomach and are described as a sensation of "chronic grief." The bowels soon become affected, and in early cases an alternating diarrhea and constipation and finally persistent constipation, and ultimately attacks of colica mucosa occur. A secretion of mucus in the bowel is practically a constant symptom. Many other symptoms occur in the course of the condition and any form of abdominal distress, palpitation, backache, coxalgia, or any symptoms of so-called neurasthenia demand an examination for the physical signs of this condition.

These patients should never be operated on for anything except definite pathologic conditions, as the ultimate results of operative interferences of visceroptosis itself are bad. The diagnosis should be made directly by finding these stigmata in cases having vague abdominal symptoms. Differentially tuberculosis and hyperthyroidism must be considered. There is no direct line of separation between hyperthyroidism and this condition, as many symptoms exist in common. It is very difficult to pick out those cases in which there is a real surgical lesion and this diagnosis must be made only on indisputable evidence.

Etiologically, a past history of chlorosis is found in a large proportion of cases, but of most importance is an exact history of stress followed by malnutrition. The prognosis is good when the cases are recognized during the early period and even in the severe cases under proper treatment there is a return to a comfortable existence without, however, there being any indefinite changes in visceroptosis. As far as treatment is concerned, the principles of the Weir Mitchell rest treatment with forced feeding give the best results. Belladonna is practically a specific in most cases.

DISCUSSION

DR. J. E. MOORE, Minneapolis: Many years ago Glenard enlightened the profession concerning visceroptosis, but the average physician paid very little attention to the subject. With the development of abdominal surgery, surgeons began to take note of these physical defects and very naturally concluded that these defects were the cause of the patients' suffering, and that the best means of treatment would be mechanical; hence, all the scars mentioned by the essayist. It is necessary in surgery, as in everything else, to go to extremes to find what the happy medium is. These operations did only temporary good, and on the whole were very disappointing, but they did not kill people, and while they were rather hard on the present generation, they have enabled us to demonstrate that operations are not curative in these conditions, and we have relegated these patients to the physician where they rightfully belong, and have very materially helped the physician to establish the ground on which he now stands. In this way these operations, now discredited alike by surgeons and physicians, will prove of untold value to future generations. These scars should not be placed to the discredit of surgeons but should be looked upon as milestones of his progress, for, having demonstrated the inefficiency of surgery, he honestly turns these patients over to the physician. Real surgeons no longer perform these operations. It is only the "would-be" surgeon, the one without personal experience, or the honesty or ability to profit by the experience of others. Our worst difficulty now is that half-baked physicians are still referring these cases to us for operation.

Polycystic Disease of the Kidney

DR. DONALD C. BALFOUR, Rochester: In the series of six cases observed in St. Mary's Hospital, four were females and two were males. In the majority of cases symptoms are absent in the early stages, but as the process advances signs of renal insufficiency become evident, such as pain of a varying character, frequent micturition, bloody urine, and, occasionally, temporary retention. In the later symptoms constitutional disturbances occur, e. g., loss of weight, reflex disorders of the stomach, secondary cardiac hypertrophy, arteriosclerosis, uremia and general failing health. The diagnosis rests mainly on the presence of tumor in one or both flanks. If both kidneys are involved, polycystic disease of the kidney may be diagnosed almost positively. Differentiation is made between this condition and hydronephrosis, pyonephrosis, and hypernephroma by means of ureteral catheterization. The affection is ultimately fatal from gradual destruction by pressure of the normal kidney tissue, although as the secreting structures of the kidney are markedly resistant to outside pressure, patients may live comfortably for some time after the cystic degeneration is fairly advanced. If the condition is diagnosed as bilateral, surgical measures are useless, and treatment along general lines should be instituted. If the kidney on the opposite side is grossly unaffected, nephrectomy may be indicated, but the mortality following this procedure makes it almost prohibitive. In doubtful cases, exploratory operation should be made. In two of the cases reported in this series some of the cysts had attained a size sufficient to make exploration advisable. One case was explored on a diagnosis of ovarian cyst; the other on a provisional diagnosis of partial rupture of the kidney, as the tumor was noticed immediately after a severe fall.

Fracture of the Elbow

DR. OWEN W. PARKER, Ely: Out of the last 4,600 injuries, 324 were fractures of which only seven involved the elbow. These fractures are much more common among children. Great care is necessary in examining all injured elbows; otherwise many fractures will be overlooked. On account of the irregularity of the lower end of the humerus, a large variety of fractures are met. In treatment, the position used by us in fractures of the elbow is either the right-angle position or that of acute flexion or hyperflexion. I prefer hyperflexion in all fractures of the lower end of the humerus, except the intercondylar. I always attempt to hyperflex the arm up to 30 or even 20 degrees. If the swelling is so great as to interfere with hyperflexion and the safety of the pulse, wait a few days and then hyperflex. Hyperflexion is maintained by dressing either with adhesive straps or by means of a roller bandage as used by Ashhurst, at no time using any splint. Splints are used when-

ever treating in the right-angle position. Full flexion, the most valuable function of the joint, is fully preserved, whereas in a right-angle position there is more apt to be some loss of flexion. Extension is less valuable than flexion and is more easily regained. It may be regained early or not for several months. It is important to preserve the carrying angle. Do not use early forcible manipulation; wait until the third week when union is fairly firm and then begin gentle passive motion, extension having in the meantime been gradually increased.

Tuberculin in the Treatment of Scleritis

DR. C. N. SPRATT, Minneapolis: I have had one case of episcleritis and six of keratoscleritis treated with tuberculin. Five patients were women and two were men. The ages of the former were between 31 and 38 years. One man was 43, the other was 55 years of age. The right eye was the one affected five times and the left twice. Two of the patients had previous attacks in the other eye. All were in good health. The location of the infiltration was, two on the temporal, two on the superior temporal, one on the nasal side, one above and one below the cornea. In three cases the entire anterior part of sclera was involved. All patients gave a general reaction to Koch's old tuberculin. Lowest febrile reaction was 100.2; highest, 102.6 F. Maximum reaction was twelve hours in two cases, thirty-six in another and an average of twenty-four hours in the others. A local reaction in the affected eye followed in six cases. In two cases Denys' bouillon filtrate was used, the initial dose being 1/1,000 mg. In the other five the bacillus emulsion was used, with an initial dose of 1/100,000 or 1/1,000 mg. The dose was slowly and carefully increased, avoiding as far as possible signs of general or local reaction. Any redness about point of injection or rise of ½ degree in temperature was considered an indication that the point of intolerance was reached. The dose was not increased or repeated until the temperature was normal for forty-eight hours. In one severe case cure was obtained in six months after forty-five injections, the maximum dose being 20 mg. bouillon filtrate. In a severe case of ten months' duration a cure was obtained in three months after twenty-two injections, maximum dose 1/50 mg. of B. E. In a case of seven weeks' duration the patient was cured in ten weeks after twenty injections maximum dose 1/50 mg. A fourth patient with trouble of eight months' standing and under treatment three months has received twenty-six injections and is improving. In a case of five months' duration the patient was cured in three months with eighteen injections of B. E., maximum dose 1/100 mg. In a sixth case of eight months' duration the patient was much improved after the diagnostic dose of 10 mg. O. T. He was sent home to have the treatment continued by his physician. The seventh patient, with episcleritis of one month's duration, is still under treatment and is improving.

KENTUCKY STATE MEDICAL ASSOCIATION

Fifty-Sixth Annual Meeting, held in Paducah, Oct. 24-26, 1921

(*Concluded from page 1635*)

President's Address: United We Stand, Divided We Fall

DR. J. G. CARPENTER, Stanford: We want better organization of the physicians of the country through their local organizations, that the advantage of cooperative study may be obtained; that the lot of the physicians may be made better; that better laws may be enacted; better sanitary conditions maintained; the science of medicine advanced more rapidly, and the mission of the physician as he sees it better fulfilled. Our conception of the physician is that he should be a leader in the community; the cleanest man in it; clean in speech; clean in his morals; a leader of opinion and the best cultured. The time is at hand when the physicians are to have the leading part in the destiny of the country. Now, the problems are social and moral and psychologic, and a different class of men should be sent to the legislatures. In this physicians and teachers must take a hand by impressing on their legislators the worth of health measures before them and helping to get men into the legislatures who will give proper consideration to these measures.

The organization of a weekly or bi-monthly graduate course in every town and county should be brought about by physicians. Every society meeting is a graduate course. This is the golden opportunity of the practitioner to gain knowledge from and impart knowledge to others.

The State Institutions and a Plea for a More Perfect Equipment

DR. H. P. SIGHTS, Hopkinsville: I would like to refer to one simple advancement in the management of the insane. This is the complete abolition of all forms of mechanical and medical restraint that were thought absolutely necessary in former years. The state institutions are conducting training schools in which the best methods of handling the insane by personal care are taught, gradually educating the people to the fact that an insane person is a sick-minded, not a deformed-minded person. Autopsies and laboratory work and study of cases will develop trained alienists who shall stand as a credit to the present methods of conducting state institutions. A psychopathic hospital is an absolute necessity to treat and care for patients, as it affords the best opportunity for recovery of the acute cases of insanity.

DISCUSSION

DR. BROOKS H. BEEBE, Cincinnati: If the legislators in their respective communities were approached in the proper manner and in the right spirit with regard to the better care and handling of the insane, I believe there is not one of them who will go counter to the physician. They are non-political when it comes to health laws, and you have control of the situation if you simply get together.

DR. W. E. GARDNER, Lakeland: While a great many improvements have been made in our asylums during the past few years, such as the abolition of non-restraint, more liberal amusements and recreation for patients, and the establishment of training schools for nurses, making provision for the care and isolation of tuberculous patients, and a more systematic examination and study of cases, yet all these things amount to very little so far as bringing the institutions up to standard is concerned and to what can really be called state hospitals for the insane. We want a hospital for the sick in each one of these institutions. We should have a psychopathic department in each one of the institutions.

DR. GEORGE P. SPRAGUE, Lexington: The number of attendants, the number of physicians and the number of employees generally throughout the institutions for the insane of Kentucky are too small, so that there is not enough supervision of patients. There is urgent need for reform in this respect. There should be more nurses, more physicians, more employees. It would be considered criminal in a well-managed hospital to have such conditions as obtain in our state asylums, and these things obtain simply because we do not know what the conditions demand, and do not voice that demand to our legislators.

Expert Testimony in Courts of Law

DR. DUDLEY S. REYNOLDS, Louisville: Expert testimony in courts of law is extremely variable. It is a well-known fact that hypotheses stated by different persons lose their original character and clearness, and are therefore well calculated to mislead the expert witness. Two or more experts may differ widely in their answers to a hypothetical question stated in the same language; when personal examination by them would lead to identical conclusions, and these conclusions might destroy the hypothesis relied on by the establishment of facts, wholly different from those on which the hypothesis was predicated. Much of the ill-repute of medical expert testimony in courts of law is due to the ignorance of the judges, and the unfortunate, not to say dishonorable methods of attorneys who are employed to contest the facts and pervert truth and justice.

DISCUSSION

DR. W. W. ANDERSON, Newport: Unfortunately, under the methods of conducting testimony and taking sides, the physician or witness is impelled to take sides, and unfortunately, physicians can be found who are willing to take sides in a case rather than go straight ahead with the truth in the case.

If we men, who are not specialists and not experts in all matters of medicine, will be honest enough when we get on the stand to disqualify ourselves until we are qualified to speak as experts, we will save our reputations and the reputations of our fellow-practitioners. We should take no side; we should take no interest in the verdict. It is none of our business, except to state the case to the jury clearly and simply, and not permit the attorneys to make us appear to say something that we did not say.

DR. J. N. MCCORMACK, Bowling Green: The condition of the profession in regard to expert testimony is the result of the vicious system which lawyers have brought on us. We are not responsible for it. The medical expert is just as important as the judge, and he ought to be selected carefully for his scientific attainments, first, and second, on account of his legal knowledge. If we selected judges as we select experts, our courts would be in bad shape, and yet we are selecting medical men in a haphazard manner, allowing any man to qualify as an expert—and he is selected by the lawyer.

DR. C. Z. AUD, Cecelia: The testimony of the expert often is biased. Many patients get well a year or so after a verdict has been rendered and damages have been recovered.

DR. VIRGIL E. SIMPSON, Louisville: As long as human nature is as it is, we are going to have malingering, and there is a possibility of physicians being honestly mistaken in giving a professional opinion. The hypothetical question is a nuisance, and whenever it is possible for an expert to make an examination of the conditions as they exist, then there is no longer any necessity for hypothesis. If doctors, in their answers to questions which in the very nature of the phraseology require yes or no for an answer, were entitled to the privilege of explaining the responses, they would be much less embarrassed than they are.

DR. CURRAN POPE, Louisville: If the lawyer insists on putting ridiculous questions which have nothing to do with the case, then I give him right straight back what he is after. We must be guarded as to our replies to questions. In the first place, we must know something. In the second place, we must be honest enough to admit that there are some things we do not know.

Care of the Insane Criminal

DR. MILTON BOARD, Louisville: An institution for the criminal insane should be established in each state for various reasons: 1. That those who plead insanity as an excuse for crime and succeed in convincing the jury that they are insane, shall not go scot-free to prey again on the public, but may be confined in a safe place where, under the inspection of competent alienists, their fraud may be uncovered, if they have practiced deception, and where their mental condition may be treated, if they are really insane. 2. For the confinement and treatment of persons who have developed well-marked criminal tendencies.

Intestinal Obstruction

DR. P. C. LAYNE, Ashland: I had a case of adynamic ileus in a man, 22 years of age, who had been operated on for acute perforative appendicitis, attended with acute peritonitis. Also a case of strangulated ileus in a child, 1 year of age. The incision revealed an acute intussusception of the ileocolic type, with about 18 inches of the ileum invaginated into the colon. Reduction was accomplished with very great effort, a long appendix excised, and a reef put into the mesentery with the hope of preventing a recurrence. Recovery was complete. Case 3 was an obturation ileus in a man, 57 years of age. Operation revealed a stricture of the bowel at the junction of the descending colon with the sigmoid. Resection of the affected segment, followed by end-to-end anastomosis with a large-sized Murphy button, was performed as quickly as possible; but the shock of the operation was too great, and the patient died about five or six hours later.

Deep Alcohol Injections for Persistent Neuralgia

DR. E. A. STEVENS, Mayfield: My opinion of the method of cure or relief in these cases is that it produces a temporary paralysis which amounts to a physiologic rest. During this rest the nerve temporarily recovers from the neuritis, but is weakened by the previous disease. The history of this treatment indicates that the neuritis will return in from one to three years after the treatment, although some of the cures seem to be permanent.

The Physician's Duty as an Educator in Preventive Medicine

DR. J. W. ELLIS, Masonville: As all reform must come from physicians along health lines, I think they should by public addresses and short newspaper articles instruct the laity.

The Surgical Treatment of Goiter

DR. JOHN R. WATHEN, Louisville: Reasoning from experience with 160 cases, I should say that if we delay operation for several years, administering iodin and electricity until the heart muscle has undergone degeneration, albumin is in the urine, enlargement and fatty degeneration of the liver, lowered blood-pressure, etc., we have waited too long to attempt any radical operative measures, and these patients will generally die. The proper time to advise operation with an expectation of a low mortality and good results is after the thyroid enlargement has begun to manifest the early symptoms of exophthalmic goiter, and has existed for several months or years, with little or no signs of improvement. Early operation, before complications have arisen, offers the best results. I have noted that all patients, in whom I was not able to reduce the pulse in preparatory treatment to below 110, died, and I lost no patient in whom we were able to reduce the pulse to below this figure. This observation was made irrespective of the original condition of the pulse when the patient entered the hospital. In other words, a patient entering the hospital with a pulse of 180, which was reduced before the operation to below 110, always recovered, and one entering the hospital with a pulse of only 120 to 130, which was not reduced below 110, always died. Those cases with intermittent pulse are the most dangerous, irrespective of the pulse-rate. My mortality has not been over 4 per cent., and I have benefited all on whom I have operated, and apparently cured permanently about three-fourths.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

November 2, CLXV, No. 18, pp. 669-708

1 Circulatory Disease, Its Prevalence in New England, Massachusetts and Boston. E. W. Dwight, Boston.
2 *Factors Involved in Production of Arterial Blood-Pressure, Physiologic and Pathologic. W. B. Cannon, Cambridge.
3 High Blood-Pressure and Arteriosclerosis. J. M. Jackson, Boston.
4 *Treatment in Circulatory Disorders. H. D. Arnold, Boston.
5 *Experimental Study of Cause of Death in Acute Intestinal Obstruction. F. T. Murphy and B. Vincent, Boston.

2. **Production of Arterial Blood-Pressure.**—The necessity of keeping in mind both the discharge from the heart and the constriction of peripheral vessels as determinants of arterial pressure is emphasized by Cannon. He says that low pressure may be due not to vasodilatation, but to a weak heart; and any agency used to increase vasoconstrictor tone under these circumstances is likely to stop the heart at once. His attention was recently called to a case of precisely this character, in which the administration of epinephrin to raise the low tension was followed by instant death, the laboring heart was overburdened by the sudden increase of load and stopped immediately. Until the part played by each of the two factors, therefore—the heart and the arterioles—is clearly demonstrated, the intelligent treatment of any disturbance of normal arterial pressure is impossible.

4. **Treatment of Circulatory Disorders.**—Arnold dwells at some length on the benefits to be derived from the proper dietetic treatment of advanced cases of circulatory disturbance. The same method of treatment is useful in earlier stages of this disease. It stands to reason, Arnold says, that

the less the eliminative power of the kidneys is impaired, the greater should be the efficacy of a measure that spared the work of the kidneys. Altogether too little attention has been paid to an excessive protein diet as a potent cause in producing disease of the kidneys. Hearty eating, too little exercise and high-pressure business cares are the factors that hurry many a valuable business man to his grave prematurely. If alcohol is added as a whip to keep up the pace, the progress of the disease is much accelerated. If these cases can be taken early, when high tension is first manifesting itself, the patients can be restored to a life of greater efficiency and relative health, and many a good citizen can be spared for an indefinite period of usefulness. To dietetic regulation in such cases must be added the lessening of the strain of business cares, moderation in all things, regularity of life, sufficient exercise and recreation and thorough elimination from the alimentary canal. The treatment is essentially prophylactic. Drugs play a very minor part.

5. **Cause of Death in Acute Intestinal Obstruction.**—The results of their experimental work are summarized by the authors as follows: 1. Interference with circulation of obstructed intestine is the vital factor in the production of the typical symptoms of acute ileus. The obstruction of the venous return is the most important element in this circulatory disturbance. 2. The acute symptoms are caused by the absorption of a toxic substance which is found in the obstructed intestine. 3. This toxic substance is destroyed by boiling. It is not soluble in water and will not pass through the Berkefeld filter. 4. The formation of this substance probably is not dependent on any vital secretion of the mucous membrane of the intestine. 5. The rapidity of absorption varies, dependent on the patency of the lymphatic channels in the mesentery, and the permeability of the intestinal wall. They conclude, therefore, that this toxic substance is purely bacterial in origin and that the living bacteria with their end toxins, not the putrefactive products nor the chemical poisons, are directly responsible for the profound symptoms and death in acute intestinal obstruction.

These experimental results confirm the clinical observations regarding the importance of any disturbance with the circulation in acute ileus and are in accord with the generally accepted ideas of surgical treatment. The demonstration of the rapidity of absorption, after interference with the circulation, emphasizes the necessity of early operation and restoration of the circulation, as well as the removal of the obstruction. The observation that the toxic intestinal content is not absorbed to any degree through the normal mucous membrane may influence materially the surgical treatment, because if this is so, an enterostomy for permanent drainage is futile, since if there is strong peristalsis to make the enterostomy effective, it would, after the obstruction is removed, force the content beyond the zone of possible absorption. In the cases in which peristalsis is evidently going to be lacking or obstructed on account of the damage to the wall of the intestine, the authors' findings would indicate a resection of the segment involved, rather than any of the various procedures, such as irrigation or massage, because of the danger from the presence of intestine which may act as a reservoir for the formation of the toxic substance, as well as furnish an avenue of absorption. The relatively low toxicity of the free fluid in the abdominal cavity, except in the terminal stages of the obstruction, would suggest that drainage of the peritoneum was indicated only when demanded by some local septic process.

Journal of Arkansas Medical Society, Little Rock

September, VIII, No. 4, pp. 103-126

6 *Management of Fractures and Crushing Injuries of Extremities. J. A. Foltz, Fort Smith.
7 Abdominal Incisions for Exploratory Purposes. C. S. Holt, Fort Smith.
8 Inguinal Hernia. H. H. Kirby, Little Rock, Ark.
9 Case of Splenectomy. P. Hunt, Texarkana, Ark.
10 *Unusual Case of Thyroid or Parathyroid Goiter. R. C. Dorr, Batesville.
11 *Surgical Treatment in Trachoma. R. Caldwell, Little Rock.

6, 10 and 11. Abstracted in THE JOURNAL, July 8, 1911, pp. 156 and 157.

Archives of Pediatrics, New York

October, XXVIII, No. 10, pp. 801-880

12 Radical Removal of Tonsils and Adenoids. C. G. Kerley, New York.
13 *Involution of Thymus by Röntgen Ray. A. Friedlander, Cincinnati.
14 Open-Air Schools and Fresh Air in Schools. L. G. Ager, Brooklyn.
15 Colon Irrigation. The Short vs. Long Tube. Comparison Based on 200 Irrigations. H. T. Machell, Toronto.
16 Further Observations on Soy Bean. J. Rehrah, Baltimore.
17 *Sugars in Infant Feeding with Special Reference to Maltose-Dextrin Preparations. J. S. Leopold, New York.
18 Investigation of Action of Sodium Benzoate in Artificially Fed Infants. C. G. Grulee and W. H. Buhlig, Chicago.

13. **Involution of Thymus by Röntgen Ray.**—The experiments made by Friedländer gave results which he thinks justify the belief that in the Röntgen ray we have a therapeutic agent of great value in the treatment of enlarged thymus. The fact that in clinical cases of status lymphaticus concomitant changes occur in other portions of the lymphoid tissues of the body, that experimentally he was able to induce changes in the spleen, both go to prove that the Röntgen ray is a valuable agent in the treatment of status lymphaticus itself. For if by exposing only the region of the thymus to the action of the Röntgen ray, one can cause diminution in size of the spleen and of the lymph-nodes, can change a lymphocytic to a normal blood-picture, it would seem that this is a distinct advance in the treatment of status lymphaticus. Certainly, the Röntgen ray is far safer than the dangerous operation of thymectomy. Apparently it is not followed by subsequent ill effects, either. Thus it is interesting to note that the first patient treated by the Röntgen ray, over six years ago, is an excellent condition. He shows absolutely no evidence of anything like a lymphatic constitution. His development has been been perfectly normal, his general health excellent. The other patients are all in excellent condition also.

17. **Sugars in Infant Feeding.**—From his studies, Leopold has come to the conclusion that a combination of about equal parts of maltose and dextrin was the sugar preparation that was borne best in the artificial feeding of infants. He found that the maltose-dextrin preparation caused dyspeptic stools and rise in the temperature much less frequently than either lactose, saccharose, glucose or maltose. It was also shown that a gain in weight was obtained in a greater number of cases by maltose-dextrin preparations than by any of the other sugars. Leopold's experiments were made on young infants, mostly under 3 months of age, because of their well-known susceptibility to digestive disturbances.

American Journal of Urology, New York

September, VII, No. 9, pp. 327-366

19 Armamentarium of Cystoscopist, with Special Reference to Use and Construction of Certain Types of Cystoscopes. L. Buerger, New York.

Long Island Medical Journal, Rockville Centre, N. Y.

September, V, No. 9, pp. 339-381

20 Treatment of Adenoids and Diseases of the Tonsils. W. W. Carter, New York.
21 Some Elementary Principles of Dieting. F. Overton, Patchogue, N. Y.
22 Organ of Mastication: the Teeth. H. C. Ferris, New York.
23 *Cause and Relief of Pain in Duodenal Ulcer. J. T. Pilcher, Brooklyn.
24 Surgical Indications of Duodenal Ulcer. P. M. Pilcher, Brooklyn.

23. Abstracted in THE JOURNAL, June 10, 1911, p. 1751.

Journal of Nervous and Mental Disease, Lancaster, Pa.

October, 38, No. 10, pp. 577-640

25 *Deviation of Tongue in Hemiplegia. E. Jones, Toronto.
26 *Osteo-Arthritis of Spine as Cause of Compression of Spinal Cord and Its Roots. P. Bailey and L. Casamajor, New York.

25. Abstracted in THE JOURNAL, July 29, 1911, p. 417.

26. **Arthritis of Spine.**—In a case of spinal arthritis with typical history seen by Bailey and Casamajor, the Röntgen ray demonstrated exostoses and ankyloses in the spinal joints and other joints, but the case presented the unusual feature of a localized paralysis corresponding to the lesion

demonstrated in the spine. In a previous case the diagnosis of extramedullary tumor had been made, but the operation showed nothing but a bony thickening of the laminæ. These two cases led the authors to an inquiry as to the circumstances under which the spinal contents may be pressed on by exostoses in a way to cause some or all of the symptoms of paraplegia. Of the five cases recorded by them all presented symptoms of compression. Some degree of spinal osteo-arthritis is extremely common in persons past middle age, and the condition itself is probably a part of the degeneration of senility. When present in slight degree, it may cause few or no symptoms, or its symptoms, when vague, may be and doubtless often are disregarded by physicians or dismissed by them as rheumatic or neurasthenic. Unmistakable local pain and rigidity are probably constant, when the lesion is extensive enough to cause focal symptoms. But in addition to the local symptoms of bone disease there is no longer doubt that spinal osteo-arthritis may cause focal symptoms in the nervous system generally referable to compression of one or more nerves, sometimes of the cord or cauda equina. A study of the subject has convinced the authors that the use of the Röntgen ray in spinal diseases can hardly be too widely extended. Osteo-arthritis is a very common disease, and in slight degrees cannot be recognized, except by means of the Röntgen ray. Many spinal symptoms classed as rheumatic and "nervous" are probably due to it; and they think it probable that some of the cases of traumatic lumbago, so frequent after injuries to the back, depend for their symptomatology on osseous hyperplasia of the spine. In such cases and as a preliminary to every spinal operation, a Röntgen-ray examination should become a matter of routine. Therapy in osteo-arthritis is discouraging. Some local measures are counter-irritation, immobilization and relief of pressure. Counter-irritation may be in the form of deep massage of the spine and the actual cautery; hot-air baths have been of little use in the authors' hands. Immobilization, by means of plaster-jacket, seems particularly useful in subacute cases, or when there is marked deformity. The operative indications are too infrequent to permit any general rules, except that operations for the relief of pressure on the cord in this disease is not contra-indicated and may result in great benefit.

Journal of South Carolina Medical Association, Chaleston

October, VII, No. 10, pp. 359-397

27 *Plastic Operations on Face. J. S. Horsley, Richmond, Va.
28 Psychic Measures in Medicine. T. A. Williams, Washington, D. C.

27. Published in full in THE JOURNAL, Aug. 26, 1911, p. 697.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

October, XIV, No. 10, pp. 578-640

29 *Bromatotherapy. H. W. Wiley, Washington, D. C.
30 Rules and Management of Labor and of Puerperium. R. H. Turner, Paris, France.
31 *Salvarsan as Patented Product. F. E. Stewart, Germantown, Pa.
32 Classification of Nervous and Mental Diseases. B. Sidis, Portsmouth, N. H.
33 Treatment of Leukemia with Mixed Toxins of Coley. R. C. Larrabee, Boston.

29 and 31. Abstracted in THE JOURNAL, June 3, 1911, p. 1676.

American Journal of Diseases of Children, Chicago

November, 2, No. 5, pp. 293-368

34 *Mikulicz' Disease, with Report of Case of Lymphatic Leukemia in Child with Marked Enlargement of Salivary Glands. W. Tileston, New Haven, Conn.
35 *Caloric Needs of Premature Infants. J. H. Hess, Chicago.
36 *Use of Malt Sugar and High Percentages of Casein in Infant Feeding. J. L. Morse, Boston.
37 *Bacteriologic Examination of Lymph-Nodes in Scarlet Fever. J. A. Kolmer, Philadelphia.
38 *Intestinal Infantilism of Herter. R. G. Freeman, New York.
39 Congenital Myatonia; Report of Case with Autopsy. W. T. Councilman and C. H. Dunn, Boston.

34. **Mikulicz' Disease.**—Tileston's case was one of lymphatic leukemia of the "aleukemic" type, in a child 2 years old with large tumors of both parotids and both submaxillary glands; lacrimal glands not involved. Blood: August 30, red cells, 6,860,000; hemoglobin, 95 per cent.; leukocytes, 14,700. September 14, leukocytes, 6,700. The histologic picture was so typical that the diagnosis of lymphatic leukemia was made without hesitation. Tileston says that there can be little question that this case should be classified as lympmhatic leukemia of the "aleukemic" or "preleukemic" type; that is to say, without increase in the leukocyte count. The histologic appearance of the salivary glands, however, is identical with that described in many cases of Mikulicz' disease without involvement of the blood or lymphatic system, so that the case also fits in with the Mikulicz syndrome. The absence of enlargement of the lacrimal glands does not preclude such a classification, for although in the typical cases of Mikulicz' disease the lacrimals are involved, a number of instances have been reported in which they were not. Therefore, Tileston believes that the term Mikulicz' disease should be reserved for those cases of chronic, painless bilateral enlargement of the salivary and lacrimal glands in which pseudoleukemia and leukemia can be excluded. The cases occurring in the last-named diseases should be classified as pseudoleukemia or leukemia with the Mikulicz syndrome. The cause of Mikulicz' disease is probably some infectious agent in the widest sense of the word. It is likely that a number of different organisms may cause the symptoms of the disease.

35. **Caloric Needs of Premature Infants.**—In a study of six infants with a birth-weight averaging between 1,000 and 1,500 gm., Hess found four infants with energy quotients fluctuating between 115 and 170, averaging daily gains between 14 and 27 gm., while those with wider fluctuation gained on an average 12 to 14 gm. daily. Infants with birth-weights between 1,500 and 2,000 gm. showed the best results when being fed between 102 and 132. The largest infant with a birth-weight of 2,010 gm. gained on 94.5 to 118.5 apparently with equal rapidity, while one infant showed marked fluctuations when an energy quotient was passed. Hess believes it is safe to state that the figures of Budin and others, of an energy quotient of 100 set for the full-term new-born infant does not hold for the premature and under-weight infant, but he would say that the energy quotient needed varies inversely with the age and birth-weight, the energy quotient averaging between 115 and 170 in those below 1,500 gm. and 100 and 132 in those over 1,500 gm. At first the caloric value of the food should be low, but the quantity of each feeding should also be small. These infants, therefore, should be fed small quantities, frequently repeated, i. e., every one and one-half to two hours during the day and two to three hours during the night, according to the development of the individual, with special reference to the digestive organs, stools, urine and presence or absence of vomiting. On the first day following the first bowel evacuation the human milk may be fed diluted with one or two parts of water or sugar, with a calorie value approximating 30. From the second day on, in the absence of indigestion, the food may be increased by 10 calories daily. In the presence of digestive disorders greater care is necessary and it may be necessary for some days to hold the feeding in the neighborhood of 90, approximately the amount necessary to maintain the metabolic equilibrium. After ten to fifteen days an attempt should be made to hold the figures, in the infant weighing less than 1,500 gm., to 120 to 140, and in those weighing over 1,500 gm. at between 110 and 130; but in all cases the infant itself should never be lost sight of, and more especially the stools and weight. One other important factor is a sufficient water-supply to counterbalance the rapid evaporation due to artificially heated and dried air and the excessive excreta of the first few days. All intestinal disturbances in premature infants should be treated as if they were atrophic infants, as they do not stand starvation well. Artificial feeding of these infants should be discouraged in all cases in which the infant is born at thirty-six weeks or under. Artificially fed, full-term infants also require a higher food-value than the same infants at the breast, the average added requirement being 10 to 20 calories per kilo, which would also hold true in premature infants, and this adds materially to the dangers of this method of feeding. The energy quotient needed in Hess' series of seventeen cases to maintain the metabolic equilibrium ranged quite

close to 90, while in the full-term infant 70 is usually sufficient. The method of administration of food in each case varied with the vitality of the infant.

36. Abstracted in THE JOURNAL, July 8, 1911, p. 153.

37. **Bacteriologic Examination of Lymphatic Glands in Scarlet Fever.**—In a study of the glands of twenty-six patients with scarlet fever, including a case cultured at autopsy, Kolmer did not find any organism, in any case, in any way resembling the bacillus described by Vipond. (See THE JOURNAL, Aug. 12, 1911, p. 588.)

38. **Intestinal Infantilism of Herter.**—The intestinal infantilism of Herter is not a very infrequent condition in young children, who for a considerable period will not grow or gain in weight, although the hygienic surroundings, feedings and supervision are most carefully managed. These children have characteristic symptoms and characteristic, abnormal intestinal flora, as well as equally characteristic changes in the urine. Freeman reports four such cases. He believes that the lack of growth is really due to an intestinal condition that interferes with a proper absorption of food in the bowels, and this interferes with an increase in weight.

Journal of Iowa State Medical Society, Clinton

October 15, I, No. 4, pp. 149-228

40 Pain in Disease of Heart. J. B. Herrick, Chicago.
41 Drug Action. C. Van Epps, Iowa City, Iowa.
42 Etiology and Pathogenesis of Anemia. C. P. Howard, Iowa City, Iowa.
43 Symptomatology of Anemia. F. Albert, Mason City, Iowa.
44 Treatment of Anemia. D. N. Loose, Maquoketa, Iowa.
45 Diverticulitis. L. W. Littig, Davenport, Iowa.
46 Growth of Public Interest in Sanitary Science. C. W. Baker, Stanwood, Iowa.
47 Epidemic of Glandular Fever. G. E. Crawford, Cedar Rapids, Iowa.
48 Contracted Pelvis Followed by Cesarean Section. J. A. Cahill, Volga City, Iowa.

Surgery, Gynecology and Obstetrics, Chicago

November, XIII, No. 5, pp. 485-596

49 Ileocecal Adhesions (Lane's Kink and Jackson's Membrane). F. G. Connell, Oshkosh, Wis.
50 Actinomycosis of Stomach. A. W. Mayo-Robson, London, England.
51 Factors in Present-Day Mortality of Appendicitis. J. M. Wainright, Scranton, Pa.
52 Physiologic Principles in Treatment of Acute Peritonitis. J. L. Yates, Milwaukee, Wis.
53 *Blood-Pressure Index of Eclampsia. H. C. Bailey, New York.
54 Seventy-Three Cases of Dudley's Operation for Dysmenorrhea and Sterility. S. M. Brickner, New York.
55 Acidosis. B. B. Cates, Knoxville, Tenn.
56 Fibroma of Vagina. A. H. Barkley, Lexington, Ky.

53. **Blood-Pressure Index of Eclampsia.**—In 1,136 systolic readings on 145 women made in the Bellevue Hospital, New York, Bailey found that the average blood-pressure is 118 mm. of Hg. These readings were made with the wide-cuff Stanton instrument, and do not include readings taken on the day of labor. These readings vary greatly, but that there is a high limit rarely passed. Many women run a continuously moderate blood-pressure which is little affected by the ordinary occurrences of ward life, but by far the most numerous are those having from day to day an irregular range of blood-pressure. As far as it could be determined, there was no regular variation in the readings from primiparæ and multiparæ. Of these women, 28 per cent. showed a variation of 25 to 30 mm. during the course of some days. A study of the nitrogen partition of the urine of the women who have marked changes from day to day has so far been found to be of little value. Observations through the remainder of the pregnancy in this type of case lead to the conclusion that changes of 30 mm. above the normal average (118) mean very little from a practical standpoint. Excitement, exertion, digestion, rest and sudden changes of position all tend to produce changes up to 10 mm., but seldom more than this amount. The onset of labor tends to raise the blood-pressure. In the first and second stages of labor 140 to 150 mm. may be considered a fair average, if taken between the pains.

Examinations of blood-pressure in early toxemia were invariably low. Apparently toxic substances are circulating in the blood which have marked influence on the vomiting center, but with little action on the vasomotor apparatus, either central or peripheral. In the developed toxemia of the latter months there is usually present a blood-pressure-raising principle or else by hormone action or similar means the pressure is raised to increase the natural resistance of the body. The fact that in the fulminant type of fatal toxemia in the latter months the blood-pressure is very low points more to the latter idea and also tends to more closely associate the early and late manifestations of poisoning that occur in these women. While it is generally known that cases of eclampsia at the time of the convulsions usually have high blood-pressures, still convulsions occur when the pressure is as low as 155. The eclamptic toxemia may be even more severe when the pressure is very low. From the analysis of blood-pressure readings by many observers 150 mm. may be taken as a danger limit, and any pressure above this should demand rigorous investigation and treatment.

Chicago Medical Recorder

October 15, XXXIII, No. 10, pp. 525-586

57 Treatment of Third Stage of Labor or Delivery of Placenta. L. C. Collins.
58 Milk Supply of Chicago. G. M. Whitaker, Chicago.
59 Cerumen (Wax) in Ears. J. C. Warbrick, Chicago.
60 Alcoholism Cured by Surgery. W. F. Waugh, Chicago.

Denver Medical Times and Utah Medical Journal

October, XXXI, No. 4, pp. 125-168

61 Malaria Contracted in Colorado at Altitude of 5,000 Feet Above Sea Level. J. E. Dale, Fort Collins, Colo.
62 Facts Regarding Pneumonia and Tuberculosis. J. M. Shaller, Denver.
63 The Mental Hospital of the Future. H. H. Drysdale, Cleveland.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

October, XIII, No. 4, pp. 209-268

64 *Nosology of So-Called Rheumatic Diseases. B. M. Randolph, Washington, D. C.
65 Influences During Pregnancy on Unborn Child. J. M. Tompkins, Richmond.
66 Ovarian Dermoid with Twisted Pedicle in Girl of Fourteen. H. A. Royster, Raleigh, N. C.
67 Hysteria or Neoplasm. T. A. Williams, Washington, D. C.

64. **Rheumatic Diseases.**—Randolph protests against the perpetuation of the use of the term "rheumatism" as being the source of incalculable error in diagnosis, prognosis and treatment, and calls attention to the fact that our knowledge of the pathology of these conditions is sufficiently developed to permit of a classification on a logical basis.

Vermont Medical Monthly, Burlington

October 15, XVII, No. 10, pp. 235-260

68 *What Standard of Efficiency Should be Required of Physicians in Order to Guarantee Best Medical Service to Public and How Should That Standard be Determined? H. C. Tinkham, Burlington, Vt.
69 Ice Water or Summer Colitis and Treatment of Mucous Colitis. B. Joseph, New York.
70 Three Hundred Confinements. L. W. Burbank, Cabot, Vt.
71 Röntgen Ray in Medicine and Surgery. W. J. Tindall, Montpelier, Vt.

68. **Standard of Efficiency Required of Physicians.**—Tinkham says it would be a decided step in advance if there was an organization of state boards which required some standard of efficiency as a prerequisite to membership and which could have some influence in bringing about a more uniform standard of examination. It is difficult to see how the influence of state examining and licensing boards is to produce an elevating influence on medical education until they are composed of men who are as well qualified to examine medical graduates as the men who compose medical faculties are qualified to teach, and it is difficult to see how state boards can determine and maintain a satisfactory standard of efficiency for medical graduates unless these boards are composed of efficient men.

Canadian Medical Association Journal, Toronto

October, I, No. 10, pp. 919-1018

72 *Transient Attacks of Aphasia and Paralyses in States of High Blood-Pressure and Arteriosclerosis. Sir W. Osler, Oxford.
73 Non-Operative Treatment of Appendicitis. R. D. Rudolf, Toronto.
74 Peritoneal Effusion (Ascites) in Typhoid. Physical Signs of Exudate in Peritoneal Cavity. A. McPhedran, Toronto.
75 Prolonged Pregnancy. A. H. Wright, Toronto.
76 Diagnosis of Syphilis by Binding of Complement Method. F. F. Gurd, Montreal.
77 Chorionepithelioma. H. N. Vineberg, New York.

72. **Transient Attacks of Aphasia and Paralyses.**—Osler cites the case of a well-built, active man of 43, who had used alcohol and tobacco in excess, and suddenly found that he could not speak or write. In a few hours he could say a few words, but incoherently. The next day he could talk, but not quite freely. There was no paralysis, no disturbance of vision and no headache. Within three or four days he was quite well and could talk perfectly. The blood-pressure was found to be 212 mm., and the attack was regarded as possibly a slight hemorrhage. Fifteen months after the attack he was very well, except that he had become very nervous and apprehensive. His arteries, with the blood-current flowing, could easily be rolled under the fingers. His heart appeared to be normal. The blood-pressure was 220 mm. in spite of the fact that he had been taking for more than a year nitrites and potassium iodid. He has had no other cerebral attack.

Another man, aged 62, had worked hard, but had not been a heavy drinker. He had used tobacco to excess. One afternoon he went out to say something to the gardener and to his surprise found it impossible. He did not feel giddy or dazed, and five minutes later he could speak quite well. He returned to the house, and about an hour afterward some people came in, and to his surprise he could not say how-do-you-do, could only nod and give a grimace. He had no headache and felt quite clear in his mind. In the course of ten to fifteen minutes he began to say a few words, though not quite clearly; in a day or two he could say everything. He remained in bed for a couple of days on low diet. His blood-pressure was 200 mm., and for the first time it was found that his arteries were sclerosed. There was an extreme degree of arteriosclerosis. Brachials, radials and ulnars were visible in their entire course, with forcible pulsation.

Osler divides these cases into three categories: (a) Healthy individuals with high blood-pressure, but without signs of arterial disease; (b) patients with well-marked arteriosclerosis, in whom the cerebral attacks have come on without warning, sometimes as the signal symptom, and a majority of Osler's cases come in this group; (c) in advanced sclerosis with cerebral changes, manifested by progressive mental and muscular weakness, all possible types of these transient seizures, including convulsions, may occur. The attacks are most frequent in the aged, but men in the fifth and sixth decades are also affected.

California State Journal of Medicine, San Francisco

October, IX, No. 10, pp. 401-446

78 Abnormal Body Temperatures in Injuries of Cervical Spinal Cord. R. L. Wilbur, San Francisco.
79 Treatment of Vascular Nevus by Use of Carbon Dioxid Snow. D. Friedlander, San Francisco.
80 Mistakes in Medical Education. D. Tait, San Francisco.
81 Some Points to be Considered in Feeding Infants. L. Porter, San Francisco.
82 Case of Carcinoma of Appendix. H. A. L. Ryfkogel, San Francisco.
83 Tentative Classification of Exceptional Children. M. P. E. Grosszmann, Plainfield, N. J.

Ohio State Medical Journal, Columbus

October 15, VII, No. 10, pp. 469-514

84 *Mucous Colitis. C. C. Fihe, Cincinnati.
85 Vaccine Therapy from Standpoint of General Practitioner. L. M. Ladd, Cleveland.
86 *Results Obtained from Use of Coley's Toxins in Treatment of Sarcoma. J. C. Oliver, Cincinnati.
87 Conservation of Humanity. O. O. Fordyce, Athens, Ohio.
88 Precautions to be Taken in Prevention of Pneumonia. G. E. Robbins, Chillicothe.
89 Recurring Corneal Erosions. J. S. Wyler, Cincinnati.

84. **Mucous Colitis.**—Fife calls attention to a röntgenologic study of mucous colitis which showed malpositions and angulations of the colon which were coincident with more or less characteristic attacks of the disease. In some of these typical attacks occurred of what Van Noorden would choose to call colica mucosa.

86. **Coley's Toxins in Sarcoma.**—Oliver cites ten cases in which he used the toxins, but he had such poor results that he discourages further use. He says comparatively few persons are cured by its administration, the vast majority, at least 90 per cent. of the cases, are uninfluenced by its use. He says one is not justified in assuming that this treatment will ever influence any large proportion of the cases of sarcoma favorably.

Ophthalmology, Seattle, Wash.

October, VIII, No. 1, pp. 1-141

90 Epithelioma of Eye at Sclero-Corneal Limbus. M. Danis, Brussels.
91 Removal of Piece of Steel from Apex of Orbit. C. A. Wood, Chicago.
92 Parinaud's Conjunctivitis; Report of Two Cases. R. M. Lapsley, Keokuk, Iowa.
93 Partial Tenotomy of Eye Muscles. R. P. O'Connor, U. S. Army.
94 Mydriatic Ozena. L. R. Culbertson, Zanesville, Ohio.
95 Mental Disturbances Following Operations and Accidents to Eyes and Responsibility of Physician as Regards Prognosis in Serious Cases. H. V. Würdemann, Seattle, Wash.
96 Present State of Question as to Trachoma Corpuscles. R. Greeff, Berlin.
97 Magnet Operation on Eye. O. Haab, Zürich.
98 Experimental Production of Congenital Cataracts and Malformations in Eyes of Vertebrates. H. E. Pagenstecher, Strassburg.
99 Special Forms of Atrophy of Iris. T. Axenfeld, Frieburg, Germany.

Medical Record, New York

November 4, 80, No. 19, pp. 909-958

100 Surgery of Common Bile Duct. J. B. Deaver, Philadelphia.
101 Primary Splenohepatomegaly in Brother and Sister. H. B. Sheffield, New York.
102 Healed Tuberculous Lesion from Life Insurance Standpoint. G. Parker, Peoria, Ill.
103 Rôle and Methods of Psychotherapy in Care of Psychasthenia Predisposing to Inebriety. T. A. Williams, Washington, D. C.
104 Recognition and Treatment of Gonorrheal Cervicitis and Endometritis. W. T. Dannreuther, New York.
105 *Use of Ipecac to Abort Typhoid Fever. W. L. Frazier, Mountain Home, Ida.
106 Transillumination in Locating Foreign Bodies in Extremities. M. H. Kahn, New York.

105. **Ipecac to Abort Typhoid.**—Frazier used ipecac in six cases of typhoid with good results. For instance: Woman 44 years of age. She was seen first on the third day after becoming confined to her bed; the case was diagnosed as typhoid on the sixth day of her illness, Widal test being positive. At 8 p. m. of the sixth day she was given 15 minims of tincture of opium; thirty minutes later she was given 30 gr. of pulverized ipecac in salol-coated capsules; the room was made dark and she was required to lie on her right side for two hours, so that the capsules might pass out of the stomach as quickly as possible. In this way vomiting was prevented by getting the ipecac past the stomach without coming in contact with the stomach wall. On the seventh, eighth and ninth days ipecac was given in the same manner, the dose being decreased 5 gr. each day; on the ninth day the dose being 10 gr. On the tenth, eleventh and twelfth days the dose was 10 gr. each day. The highest temperature recorded was 103.8 F. on the seventh day. The highest recorded on the eighth day was 99.6 F. There was no elevation of temperature after the ninth day. The ninth day of her illness was the fourth day she was given ipecac. The remaining cases were treated similarly. Frazier says it is necessary that each fecal discharge be carefully examined to find whether or not any of the capsules pass without being dissolved.

Annals of Ophthalmology, St. Louis

October, XX, No. 4, pp. 711-856

107 Mechanics of Choked Disk. M. Standish, Boston.
108 Relation of Choked Disk to Intraocular Tension; Clinical Study of Six Cases. W. R. Parker, Detroit.
109 Lead Amblyopia and Presentation of Case of Left Homonymous Lateral Hemianopsia Due to Lead Poisoning. C. Williams, Philadelphia.
110 Probable Cyst of Retina. G. S. Derby, Boston.
111 Case of Syphilitic Tarsitis Treated by Salvarsan. A. C. Sautter, Philadelphia.
112 Episcleritis Periodica Fugax. A. C. Snell, New York.
113 Three Cases of Xerosis Epithelialis with Involvement of Muscular Anomaly. H. W. Wootton, New York.

Ophthalmic Record, Chicago

October, XX, No. 10, pp. 599-648

114 Histopathology of Diplo-Bacillary Conjunctivitis. H. McKee, Montreal.
115 Case of Amblyopia Due to Ingestion of 120 Grains of Quinin Sulphate. G. F. Keiper, Lafayette, Ind.
116 Two Cases of Embolism with Retention of Central Vision. A. C. Snell, Rochester, N. Y.
117 New Operation for Pterygium. D. W. White, Pawnee, Okla.
118 Three Cases of Xerosis Epithelialis with Involvement of Cornea. H. V. Dutrow, Ancon, Canal Zone.
119 Blood Condition in Sympathetic Ophthalmia. H. S. Gradle, Chicago.

St. Louis Medical Review

October, V, No. 10, pp. 289-320

120 Vaccine Therapy in General Practice. G. H. Sherman, Detroit.
121 Experimental Investigations and Pathologic Researches. Cause of Cancer. F. Gaertner, Pittsburgh.
122 Some Interesting Cases of Pneumonia. A. E. Campbell, Clinton, Ill.
123 Treatment of Infections of Hands and Fingers, with Special Reference to Tenosynovitis. S. W. Moorhead, Philadelphia.
124 Specific Gravity of Urine in Relation to Diet and Chlorids. J. C. Warbrick, Chicago.
125 Man as Geologic Species in Western Hemisphere. A. S. Ashmead, New York.

Therapeutic Gazette, Detroit

October 15, XXXV, No. 10, pp. 685-760

126 The B. C. Hirst Bag for Hydrostatic Dilatation of Cervix. R. L. John, Philadelphia.
127 Action of Animal Extracts on Secretion of Mammary Gland. I. Ott and J. C. Scott, Philadelphia.
128 Adenoids: Indications for Their Removal, Operation of Adenectomy and Liability of Recurrence. W. H. Tomlinson, Philadelphia.
129 Dyspepsia of Heart Disease and Its Dietetic Treatment. A. W. Calloway, Asheville, N. C.

Medical Herald, St. Joseph, Mo.

October, XXX, No. 10, pp. 431-472

130 Three Cases of Acute Poliomyelitis in Same Family at Same Time. A. L. Skoog, Kansas City.
131 Should Venereal Infections Be Classed and Reported as Contagious Diseases? T. M. Paul, St. Joseph, Mo.
132 Case of Extreme Edema of Cecum Following Gangrenous Appendicitis. L. J. Dandurant, St. Joseph, Mo.
133 Tonsils as Source of Infection. Tonsillitis and Peritonsillar Abscess; Its Prevention. C. F. Bartholomew, Broken Bow, Neb.
134 Alcoholic Degenerations. T. D. Crothers, Hartford, Conn.
135 Penetrating Wounds of Eyeball. P. I. Leonard, St. Joseph, Mo.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

October 21, CLXXXI, No. 4599, pp. 1117-1178

1 *Old and New Views on Treatment of Tuberculosis. C. T. Williams.
2 *Results of the Manipulative Treatment of Congenital Dislocation of Hip-Joint. G. C. E. Simpson.
3 *Case of Axial Rotation of Fibroid in Which Uterus Was Involved in Twist. J. Bland-Sutton.
4 *Acute Rheumatism Among Children. F. Langmead.
5 *Acute Endocarditis Caused by Microorganism Hitherto Undescribed. A. T. Nankivell.
6 Spinal Anesthesia in Egypt. H. E. S. Stiven.
7 Acute Glaucoma Successfully Treated by Operation of Trephining the Sclera. S. Stephenson.
8 Case of Intrauterine Hemorrhage with Nervous Origin. D. Fenton.

1. **Treatment of Tuberculosis.**—Williams is convinced that any comprehensive scheme for dealing with tuberculosis in Great Britain should include the establishment of a large number of tuberculosis hospitals scattered over the country in close connection with dispensaries and sanatoriums and as a further link in the chain some form of labor colonies and exchanges should be available. He says that the task of further reducing and abolishing tuberculosis is not a hopeless one, but it does not lie wholly with the physicians. It lies also with those who have it in their power to remove or lessen the principal causes of tuberculosis, viz., the overcrowding of our cities, the want of open spaces and ventilation, the insanitary houses, the lack of a good supply of water and of pure milk. If all these defects were remedied the number of phthisis cases would be comparatively small. The government and the local authorities could insist, too, on the removal of advanced cases of tuberculosis to a hospital or infirmary, and thus do away with one chief source of infection, and we should soon see a rapid fall in the number of contact cases and in the mortality tables.

2. **Congenital Dislocation of Hip-Joint.**—Congenital dislocation of the hip is a condition which progressively gets worse till puberty and may cause severe deformity. In adult life further trouble may arise and completely incapacitate the patient. Simpson has found that treatment by manipulation at the earliest possible time after infancy may be expected to yield a stable articulation with perfect function in 60 to 70 per cent. of the cases. A slight limp (due to imperfect growth of the bones) and some slight limitation of movement may remain, but the children are cured of any obvious deformity or incapacity. Of the remaining 35 to 40 per cent. the condition is usually much improved by treatment. The treatment in children below 8 years of age is attended by little or no danger and by few unfavorable accidents. The trouble caused to the parents is slight and the loss of school attendance in early childhood is of but small importance. In children between 9 and 12 years of age treatment by manipulation has greater dangers and inconveniences and gives much less favorable results. It should, however, be tried in all cases which have unfortunately reached this age with the condition unremedied; great care and gradual reduction avoid the dangers of shock and laceration and considerable improvement is usually effected. In unsuccessful and relapsed cases some form of open operation may prove of advantage.

3. **Axial Rotation of Fibroid.**—A spinster, aged 67, sought Bland-Sutton's advice on account of pain, discomfort and frequency of micturition, associated with a large tumor which could be felt in the hypogastric region. It had the clinical features of a uterine fibroid. When exposed in the course of the operation performed for its removal, the tumor proved to be as big as the head of a new-born child. On withdrawing the tumor the pedicle was found to be twisted like a rope; on untwisting it the ovaries, Fallopian tubes and uterus were recognized. Subtotal hysterectomy was performed.

4. **Acute Rheumatism Among Children.**—Altogether 2,556 children were examined by Langmead. Of these, 844 were boys and 838 girls in the senior departments, i. e., from 6¼ to 14 years old; and 874 were attending the infants' department, and consisted of nearly equal numbers of boys and girls from 3 to 6½ years old. Fifty-nine boys and 74 girls could be classified as definitely rheumatic, a total of 133. This is equivalent to a percentage incidence of 5.20 for children of all ages attending school, or of 6.83 for children in the senior departments only, those attending the infants' department being excluded from the estimation. In the majority of cases attention was drawn to the rheumatic child by the condition of the heart, sometimes by definite valvular disease, at others by dilatation accompanied by such alteration in sounds and rhythm as one is accustomed to hear in rheumatic children. More and more children become rheumatic as they grow older. There is, however, an apparent accession of rheumatism at the age of 10 which is not shown in subsequent years. Langmead gives no explanation for this and regards it as an inaccuracy which would have disappeared if a large enough number of children had been examined.

Out of these 133 children all except 18 showed some evidence of cardiac disorder at the time of examination. This rheumatic heart affection occurred in 4.49 per cent. of the children of all ages attending school, or in 5.94 per cent. of those in the senior departments only. Obvious valvular disease was found in 2.93 per cent. of children at all ages, or 3.92 per cent. of those in the senior departments. Mitral regurgitation was noted 44 times; mitral stenosis 15 times; double mitral disease, 9 times; aortic regurgitation and mitral stenosis only once; dilatation with a systolic bruit at the apex, possibly mitral regurgitation, 12 times; dilatation with a short presystolic rumble, or so-called reduplicated second sound (mid-diastolic bruit), possibly early mitral stenosis, 8 times; dilatation without bruits, 20 times. The comparative rarity of aortic regurgitation in children is emphasized by the fact that only one case was discovered among the 2,556 children examined. Chorea did not appear among the children or in the histories of their previous illnesses as often as might have been expected. There were eighteen cases only, which amounted to 0.70 per cent. of all the children of all school ages or 1.06 per cent. of the children in the senior departments. The comparative incidence in boys and girls followed the usual rule, there being twice as many girls affected as boys. Thus 0.71 per cent. of the boys were at some time choreic and 1.43 per cent. of the girls. The relation of enlarged tonsils and adenoid vegetations to rheumatism in childhood is well illustrated by the figures obtained. Taking the 133 rheumatic cases, in 75 there were no signs

of abnormality in the throat, in 21 the tonsils were slightly enlarged, in 11 considerably enlarged, in 16 greatly enlarged and in 3 tonsillotomy had been performed before the patients were examined. Adenoids were responsible for producing signs of post-nasal obstruction and mouth-breathing in 7. In other words, there was an abnormality of the tonsils or pharyngeal mucosa or both in 58 cases, or in 43.6 per cent. of the rheumatic cases. This was sufficient to warrant operative interference in 37 cases, or 27.8 per cent. of the rheumatic cases.

5. **Acute Endocarditis.**—The diplococcus which Nankivell obtained from the patient's blood-stream showed no evidence of having a capsule. In shape each coccus was round, the diameter being about 0.7. There was no tendency to chain formation, either in broth or on solid media. The organism showed no evidence of a hilum. It was non-motile. It had neither spores nor flagella. Its thermal death-point was 48 C. This diplococcus does not retain the stain by Gram's method, it is Gram-negative. It stains well with dilute carbol-fuchsin and eosin, less brilliantly with the blue dyes. It is not acid-fast. On nutrient agar the diplococcus grows well at 37 C. and fairly well at 20 to 22 C. At 42 C. on agar the growth is only slight. The growth on agar has a ground-glass appearance, with small translucent separate colonies at the edges of the streak. The organism does not readily die and will survive on agar for at least twelve weeks without subculturing. The diplococcus will grow both anaerobically and aerobically. It liquefies gelatin. It grows well in broth and peptone water, forming a precipitate; in peptone water it produces indol at the end of a week's growth. On Conradi-Drigalski medium and on Rebipelagar the diplococcus grows feebly, forming white, pin-point, translucent colonies. Litmus milk is clotted and turned acid by the diplococcus in forty-eight hours; the clot is firm and not honeycombed, and the supernatant whey is clear. The organism ferments glucose, with the production of acid, but no gas. Lactose, sucrose, maltose, galactose, raffinose, arabinose, mannite, dulcite, inulin, salicin and dextrin are not affected. The diplococcus is not hemolytic. The acidity and alkalinity of the culture media do not influence greatly the growth of this microorganism. It grows well on agar between 45 and 60 (Eyre's scale). Outside these extremes the growth is more feeble. The organism is inhibited by 1 in 40,000 malachite green. This diplococcus does not seem to be very pathogenic. The little girl from whose blood it was obtained was at no time very ill, nor did it produce any ill-effects when injected into guinea-pigs.

British Medical Journal, London

October 21, No. 2651, pp. 961-1052

9 *Old and New Views on Treatment of Tuberculosis. C. T. Williams.
10 Auricular Fibrillation. J. Mackenzie.
11 *Infusion Anesthesia: Use of Normal Saline Infusion as Means of Administering Ether. F. Rood.
12 Symphyseal Ligament of Parturient Guinea-Pig. J. Bland-Sutton.
13 Resuscitation of Still-Born. Sir F. Champneys.
14 Eclampsia Complicating Labor in Girl Aged 12; Recovery of Mother and Child. C. H. Roberts.
15 Present Position of Vaginal Operations in Relation to Uterus and Adnexa. P. Strassmann.
16 Cause and Cure of Eclampsia. H. Tweedy.
17 Dangers of Fibromyomata of Uterus in Later Years of Life. J. N. Stark.
18 Dysmenorrhea Due to Very Small Fibroids. T. Wilson.
19 Case of Tuberculous Elephantiasis of Vulva. C. E. Purslow.
20 Diagnosis and Treatment of Conditions in Accessory Nasal Sinuses Giving Rise to Oculo-Orbital Symptoms. A. Onodi.
21 Submucous Resection of Nasal Septum. D. McKenzie.
22 Treatment of Tuberculosis of Larynx. D. Grant and P. Watson-Williams.

9. See Abstract 1.

11. **Infusion Anesthesia.**—The most striking features of infusion anesthesia, Rood says, are: Extreme flexibility so that the condition of the patient can be adjusted with great nicety and can be changed in the direction of deepening or lightening of anesthesia with really remarkable rapidity. That the patient begins to come round very soon after the anesthetic is stopped and is able to converse rationally within a few minutes. That postanesthetic vomiting and pulmonary irritation are both extremely rare. Rood has used it with much satisfaction in twenty-one cases.

Clinical Journal, London

October 4, XXXVIII, No. 26, pp. 401-416

23 Clinical Effects of Extravasations of Blood. C. B. Lockwood.
24 Asthma. F. J. Wethered.
25 Medical Hydrology in Relation to Treatment of Nervous Disorders. R. F. Fox.

October 11, XXXIX, No. 1, pp. 1-16

26 Arthritis Deformans. A. H. Tubby.
27 Tubercle Bacillus and Infection in Pulmonary Tuberculosis. C. Wall.
28 Clinical Aspects of Vertigo. C. E. West.

October 18, XXXIX, No. 2, pp. 17-32

29 Nervous Affections of Traumatic Origin. Sir D. Ferrier.
30 Arthritis Deformans. A. H. Tubby.
31 Some Aids to Diagnosis of Pulmonary Tuberculosis. C. Wall.

Dublin Journal of Medical Science

October, No. 478, pp. 242-328

31 Vital Statistics of Ireland Since 1864. Sir W. J. Thompson.

Journal of Tropical Medicine and Hygiene London

October 16, XIV, No. 20, pp. 301-316

33 Third Report on Experimental Work on Animal Trypanosomiasis. H. A. Foy.
34 *Salvarsan. J. C. Graham.

34. **Salvarsan.**—A man who was suffering from an obstinate pharyngeal ulcer, had been under treatment with ¾ c.c. of a 1 per cent. solution intragluteal injection of bichlorid of mercury daily for ten days. He then had a course of potassium iodid for two weeks. To accelerate his recovery Graham decided to inject 0.4 gm. salvarsan intravenously. After the usual initial rise the man's temperature returned to normal on the following morning, but he complained of general malaise and pain in his loins and epigastrium. All treatment failed to alleviate this and he required morphin injections to get even a little sleep at night. By way of nourishment he could only stand a little milk; symptoms of paraplegia supervened and gradually became worse. He became unconscious on the morning of the fifth day after the injections with fixed pupils and tonic spasms. Post mortem there were extensive extravasations varying in size from a millet seed to a split pea and even larger all over the serous lining of the chest and pericardium and on the heart itself. The blood itself was also more diffluent than usual. Heart, kidneys, liver and spleen were all in a more or less pulpy condition; the spleen was enlarged and contained a small abscess in its lower segment. Taking the condition of the patient at the time of the injection when he was clinically comparatively well, with the exception of his pharyngeal ulcer, Graham thinks it quite impossible for the death on the fifth day after injection to be ascribed to any other cause than the salvarsan. Under these circumstances in spite of the occasional brilliant results achieved with salvarsan, he says that patients ought to be warned that a certain number of cases end fatally, death being directly due to its use, so that they may know what risks they incur.

British Journal of Children's Diseases, London

October, VIII, No. 94, pp. 433-480

35 *Blood-Pressure in Diphtheria. J. D. Rolleston.
36 Dull and Backward Children. A. F. Tredgold.
37 A Complex Tumor (Nævoid) of the Fronto-Nasal Region. D. M. Greig.

35. **Blood-Pressure in Diphtheria.**—In a series of 179 cases of diphtheria examined by Rolleston the blood-pressure was found to be subnormal in sixty-three patients, or 35.1 per cent., the extent and duration of the depression having as a rule, a direct relation to the severity of the faucial attack. In the great majority the highest readings were found in the first and the lowest in the second week of disease. The normal tension was usually reestablished by the seventh week. In a large proportion of convalescent cases either the readings in the recumbent and erect positions were the same, or the recumbent was higher than the vertical record until the convalescence was firmly established. In laryngeal cases disproportionately high readings were obtained, especially when the dyspnea was sufficiently severe to require operation. Relief of the obstruction by tracheotomy was followed by an immediate and steep fall of blood-pressure (20 to 40 mm.). The blood-pressure showed little tendency to be affected by the early serum phenomena, but during the late febrile syndrome it was raised in 40 per cent. Albuminuria was accom-

panied either by a fall or by no change in the blood-pressure except in a case of uremia, in which there was hypertension. In early paralysis the blood-pressure tended to fall. In late paralysis, even when extensive, it was usually not affected. Rolleston concludes that sphygmomanometry in diphtheria, as in other acute diseases, though of considerable theoretical interest, has little practical significance.

Glasgow Medical Journal

October, LXXVI, No. 4, pp. 241-319

38 Ulcerating Gummatous Syphilide Treated by Salvarsan in a Congenital Syphilitic. G. H. Edington and C. H. Browning.
39 *Diphtheritic Paralysis. A. Love.
40 Public Health Administration in Glasgow. H. A. M'Lean.

39. **Diphtheritic Paralysis.**—Of 1,313 patients seen by Love, 85, or about 6 per cent., became paralyzed. Of these 85 patients, 65, or 77 per cent., recovered and 20 to 23 per cent. died. In no one case could death be attributed solely or directly to paralysis, although in all cases it was contributory. In 10 of the cases that terminated fatally the disease was of the malignant type, while in the others it was of a severe character. Eight had nasal implication, 7 a combination of faucial and laryngeal diphtheria with tracheotomy in three instances, and 27 had greatly enlarged cervical glands. Of the latter, 2 went on to suppuration. Of the 85 patients, 53, or almost two-thirds had paralysis of the palate alone; 15 of the eyes and palate; 3 of the eyes alone (strabismus). Of the 15 who were afflicted with paralysis of the eyes and palate combined, 3 had paralysis of accommodation as well as strabismus. Paralysis of the ocular muscles alone is uncommon, and only 2 of the 68 patients recorded were affected in that way. Of the 12 patients noted as having intercostal and cardiac paralysis, 9 died and 3 recovered, the main symptoms being great difficulty in inspiration with marked feebleness and irregularity of the heart. In the one case in which the lower limbs only were affected the loss of power lasted only for a few days. The average duration of the paralysis was eighteen days. The urine varied greatly as regards albumin. Of the 85 patients, 27 had a large quantity of albumin in the urine, 18 had a moderate quantity, 17 a mere trace and 23 no albumin in the urine at all. With one exception there was a large quantity of albumin in the urine of all the fatal cases. In connection with the administration of antitoxin, it is interesting to note that out of the 85 patients dealt with, 38 were afflicted with serum rashes. In 28 cases the rash was urticarial in character and general in distribution, in 6 it was scarlatiniform and in 4 morbilliform. Two of the rashes, which on their first appearance were urticarial, became morbilliform in about twenty-four hours, while one, which was in the first instance scarlatiniform, became morbilliform in the same time. The serum rash when urticarial in character appeared usually on the ninth day after the administration of serum and lasted on an average 4.2 days. The scarlatiniform rash also appeared on the ninth day, but usually lasted only two days, while the morbilliform rash came out on the twelfth day after the injection of serum and as a rule lasted four days. All-important as is the early administration of antitoxin, it is a mistake to suppose that in the late cases antitoxin is of no avail. Twenty-seven of the patients were admitted after the fifth day and all received antitoxin. Of these, five died, a mortality of 18.5 per cent.

Annales de Médecine et Chirurgie Infantiles, Paris

October 1, XV, No. 19, pp. 593-620

41 *Symptomatic Importance of Constipation in Children. (Valeur sémélologique de la constipation chez les enfants.) E. Périer and Gaujoux.

41. **Constipation in Children.**—Périer and Gaujoux discuss the symptomatic importance of constipation from obstruction, from modification of the contents of the intestines and from defective action of the expelling muscular fibers or nerve plexuses innervating the intestine. Search for the cause along one of these three lines will clear up many puzzling syndromes. Constipation in the mother, especially from lack of out-door exercise, is a frequent factor in the constipation of infants. Congenital stenosis of the rectum may escape discovery for several weeks or months.

Archives Générales de Chirurgie, Paris

September, V, No. 9, pp. 961-1080

42 Intrasaccular Suture in Treatment of Aneurysm—Endoaneurysmorrhaphy. (De l'anévrismorrhaphie.) C. Monod and J. Vanverts. Concluded in No. 10.
43 Cicatricial Changes in Inguinal Canal as Factor in Strangulation of Hernia and Retention of Testicle. (Les cicatrices péritonéales du canal inguinal.) L. Delrez.
44 Operative Treatment of Undescended Testicles. (Technique opératoire de l'ectopie testiculaire inguinale ou iliaque.) R. Le Fort. Commenced in No. 8.
45 Metal Sheath Applied Directly to Fractured Long Bones. (Essais de traitement sanglant des fractures diaphysaires avec des bagues et des plaques amovibles engainantes.) P. Mauclaire.

Archives de Médecine des Enfants, Paris

October, XIV, No. 10, pp. 721-800

46 *Asthma in Children. (L'asthme chez les enfants.) J. Comby.
47 Wedge Excision in Treatment of Rachitic Curvature of the Leg; Two Cases. (Les incurvations rachitiques de la jambe et leur traitement chirurgical.) V. Veau.

46. **Asthma in Children.**—Comby reviews his experiences with seventy-five cases of asthma in children, his impression being that this paroxysmal respiratory neurosis is never due to adenoids or nasal catarrh and is never influenced by operations for the latter, but it may be accompanied by a chronic catarrhal bronchitis or violent and repeated sneezing. The child outgrows the tendency and the lungs do not seem to suffer from it, but the underlying arthritic tendency persists and is liable to manifest itself in other ways. The first attack of the asthma is often puzzling; pneumonia is suspected, but the sudden onset, the normal temperature and the musical character of the râles and their propagation and the transient character of the syndrome all contradict pneumonia. Compression of the air passages by the thymus or enlarged glands and tuberculosis can easily be excluded. Treatment of the attack may be by revulsion, mustard plasters or dry cupping, and by sedatives, opium, belladonna, aconite; morphin will rarely be necessary, but Dover's powder may be given—0.05 gm. per year of the age. The diathesis is best combated by an out-of-door life, rubbing the skin, baths and douches and a vegetable diet. Arsenic, potassium iodid and sulphur may prove useful, especially in the catarrhal forms. Comby generally prescribes them in the form of sodium arsenate, 1, 2 or 3 mg. daily for ten days each month, and then 0.1 gm. of sodium or potassium iodid daily for 10 days.

Bulletin de l'Académie de Médecine, Paris

October 10, LXXV, No. 32, pp. 117-148

48 *Salvarsan in Syphilis. (Sur un cas de mort survenu apres deux injections de 606, chez un sujet relativement sain.) H. Hallopeau and others.
49 *Arteriosclerosis of Heart and Aorta is Often Merely Syphilis. (L'artério-sclérose du cœur et de l'aorte n'est souvent que de la syphilis.) C. Flessinger.
50 General Spinal Anesthesia. (La rachianesthésie générale par la strychno-stovaïnisation.) T. Jonnesco.

48. **Fatality After Salvarsan.**—Hallopeau has never used salvarsan but knows of an accident from it, the patient, a robust man of 35, previously addicted to alcohol but having abandoned its abuse for the last two years. He contracted syphilis in 1902 and in recent years has been tormented by a recurring eruption on palms and soles for which he was given two intravenous injections of salvarsan, 0.3 and 0.4 gm. in six days. The third day following the last injection there was some nausea, with vomiting, and the third day convulsions came on, with tremor, the temperature rose to 104 F. and the patient died in coma during the night. The case teaches, Hallopeau thinks, that salvarsan is contraindicated when there is a history of alcoholism. Gaucher in the discussion maintained that salvarsan is a violent poison for the nervous system and stated that he had witnessed several fatalities after its use at the Saint-Louis Hospital, all these patients dying with epileptiform convulsions. Only one of these cases has been published (Ravaud's); the necropsy findings convinced Gaucher that death was the result of arsenical intoxication. He added that salvarsan is given in private practice under conditions of such secrecy that the outcome is never published. He knows of one fatality which followed injection of merely 0.3 gm., and acute mania developing in a paralytic after one injection. P. Marie's experience with salvarsan has been satisfactory, he said, and he has never had

any cause for uneasiness with it, not even with patients with general paralysis and tabes, but he never gives doses over 0.2, 0.3 or 0.4 gm., although he does not hesitate to repeat this dose at need after intervals of fifteen or twenty days.

49. **Syphilis in Etiology of Arteriosclerosis of Heart and Aorta.**—Fiessinger found a history of syphilis in 28 of 37 cases of aortic insufficiency; in 4 of 5 cases of bradycardia; in 6 of 6 cases of aneurysm, and in 2 of 3 patients with constant arhythmia. Even with organic angina pectoris in persons under the age of 50, he found 6 syphilitics in 11 cases; above this age only 3 in 41 cases. In a total of 92 patients with heart disease of the sclerotic type syphilis was admitted by 54 of the patients; a positive Wassermann reaction unlocks the tongue in many cases. One of the patients had had permanent slow pulse for forty-seven years after the primary sore, and gave a marked Wassermann reaction. Specific treatment generally comes too late to do much good although the pains may be relieved. The warning signs are a certain dyspnea after exertion, tachycardia, hard and strong pulse, blood-pressure a little above normal, bulging of the arteries at the base of the neck, perception of the aortic pulse at the bifurcation of the sternum, and accentuation of the second aortic sound. The kidneys are sound and there is no albuminuria. This combination in a patient between 35 and 50 is almost pathognomonic of syphilitic cardiovascular disease and a positive Wassermann reaction will clinch the diagnosis. Mercurial treatment at once may banish the whole trouble. One of his patients in this category had the pains aggravated by two injections of salvarsan. He has witnessed dyspnea or pulmonary edema more than once after administering iodids in syphilitic cardiovascular disease.

Journal de Chirurgie, Paris

September, VII, No. 3, pp. 237-368

51 Emergency Operations for Traumatic Hemothorax. (L'intervention chirurgicale d'urgence dans les grands hémothorax traumatiques.) C. Lenormant.

Lyon Médical, Lyons

September 24, CXVII, No. 39, pp. 617-664

52 The Internal Secretions and the Nervous System. J. P. Morat.

October 1, No. 40, pp. 665-712

53 Psychotherapy in Neurasthenia. M. Rifaux.
54 Experimental Grafts and Anastomoses of Nerves. (Greffes et anastomoses nerveuses.) Duroux.

October 8, No. 41, pp. 713-752

55 Weight of Children Before and After Sanatorium Treatment. (Résultats pondéraux de la cure marine de Giens.) R. Rendu. Commenced in No. 40.
56 Effect on Eye of Excision of Gasserian Ganglion. (Ablation du ganglion du Gasser et ses effets sur l'œil.) M. Jaboulay.

Obstétrique, Paris

October, IV N. S., No. 10, pp. 825-952

57 Fatal Non-Traumatic Hemorrhage from the Liver in New-Born Infants. (Pathogénie des hemorrhagies du nouveau-né.) E. Bonnaire and G. Durante.
58 *Pubiotomy. (Sur l'hébostéotomie.) H. van de Velde.
59 *Puerperal Infection from Diphtheria Bacillus. (De l'infection puerpérale à bacilles de Loeffler.) C. Bourret.

58. **Pubiotomy.**—Van de Velde has done pubiotomy fourteen times during the last ten years; the pelvis was permanently enlarged by it in nine of the patients. One patient in advanced bilateral renal tuberculosis succumbed soon after the operation, but the others recovered without mishap. He compares his results with those obtained by others, tabulating thus 125 cases; in seventy-four the pelvis was permanently enlarged. Comparison of the data shows, he says, that pubiotomy is a useful operation when the diameter is over 8 cm. and the patient not infected and when this is not the first childbirth. Under other conditions it exposes to too many dangers. The great and sovereign virtue of pubiotomy is that it gives the obstetrician confidence to wait for spontaneous delivery; as he knows he can interfere at any time he feels serene in giving Nature more of a chance than otherwise he would consider advisable. In this way pubiotomy has materially reduced the number of obstetrical operations.

59. **Puerperal Infection with Diphtheria Bacilli.**—Bourret adds another to the forty-one cases of this kind on record, giving a summary of each, including an epidemic of thirty-three cases in 1890 at a Paris maternity, and Williams' case in 1898. The false membranes develop at the site of lacerations or other lesions. Edema of the external genitals is an important symptom when present, as in his case, and swelling of the regional lymph-nodes was pronounced in a number of cases, generally bilateral. This enlargement of the glands was an early sign. Paralysis of the sphincters was observed in some cases. The fever is usually proportionate to the severity of the membrane production, but in two cases the temperature persisted normal. In some the fever was the first sign of mischief, but it seldom was correctly interpreted. Prostration and somnolency were extreme in some of the cases; headache was another symptom, and in Bourret's case there was great difficulty in breathing but no wheezing or croupiness. Serum treatment gave excellent results, but in Bumm's cases the serotherapy did not prevent development of a pharyngeal and nasal diphtheria when the genital diphtheria was retrogressing. In only three of the cases did the infants contract diphtheria. His patient had mixed infection and the diphtheria was not recognized until nearly two weeks after the onset of the puerperal infection, and the patient died the day after the antitoxin had been injected.

Presse Médicale, Paris

October 4, XIX, No. 79, pp. 785-792

60 *Aortic Reflexes in Diagnosis and Treatment of Aneurysm of the Aorta. (Contribution au traitement des anévrismes aortiques.) A. Abrams (San Francisco).

October 7, No. 80, pp. 793-808

61 *Technic for General Anesthesia for Operations on Upper Air Passages. (La chloroformisation dans les interventions sur les voies aériennes supérieures.) P. Blanluet.
62 *Pneumonic Plague. (Contribution à l'étude de la pneumonie pesteuse de Childe.) F. de Mello.
63 Deep Injections of Alcohol in Treatment of Trigeminal Neuralgia. (Les injections d'alcool dans le ganglion de Gasser à travers le trou ovale.) N. Tapias.

October 11, No. 81, pp. 809-816

64 Antisyphilitic Treatment of Tabetic Arthropathy. (Traitement spécifique et arthropathies tabétiques.) G. Etienne and M. Perrin.
65 High Blood-Pressure and the Viscosity of the Blood. (Hypertension artérielle et viscosité sanguine.) A. Martinet.

October 14, No. 82, pp. 817-832

66 Anatomy of the Bile Ducts in Relation to the Arteries. (La voie biliaire principale sus-pancréatique.) P. Descomps.
67 *Preferable Technic for Determination of Tubercle Bacilli in Urine. (Valeur comparative des procédés pour déceler et colorer les bacilles tuberculeux dans l'urine.) V. P. Sémionov.
68 Cocain in Local Anesthesia of the Uterus. M. Febres.

60. See THE JOURNAL, 1905, xlv, page 1027, abstract 19.

61. **General Anesthesia for Operations on Upper Air Passages.**—Blanluet illustrates the various devices in use to facilitate long operations on the upper air passages. He prefers a combination of several as he describes in detail.

62. **Pneumonic Plague.**—De Mello is chief of the sanitary authorities in the Portuguese Indies, and describes the methods by which he has been able to stamp out epidemics of plague on their first appearance. First and foremost is the education of the people by lectures, talks and in every other possible way striving to reassure the populace and teach them how to protect themselves against contagion. He preaches that the lymphatic system is the portal of entry and of propagation of the infection, no matter what form the plague may assume. If infectious material gets on an abraded mucous membrane, it penetrates into the lymphatic system just as if introduced by the bite of a flea. In one family there were ten cases of plague; it was of the pneumonic form in the first three but of the bubonic type in the following cases.

67. **Tests for Tubercle Bacilli.**—Sémionov relates his experience with the various methods for determining the presence of tubercle bacilli in urine, his final conclusions being that the Ellermann-Erlandsen method is the most accurate and reliable, but that for ordinary purposes the Koslov method is extremely satisfactory while it is simpler and rapid. It combines the use of antiformin with that of a mixture of ether and acetone. The antiformin dissolves out the bacilli and they rise to the surface and float on the ether-acetone mixture. To 5 c.c. of urine is added 1 c.c. of antiformin. After thirty minutes twice the volume of the mixture is diluted with twice the volume of water and again with twice the volume of a mixture of equal parts ether and acetone. After stirring for five

seconds the fluid is allowed to settle for one minute. The fluid then consists of an upper layer of ether, a lower layer of water, antiformin and acetone, while suspended between these layers is a middle layer of bacilli, which is taken for examination. Koslov's method of staining also shortens the technic. He makes his stain by grinding 1 gm. of gentian violet with 6 gm. of phenol and adding gradually 40 gm. of glycerin and then 100 c.c. of water. After fixation as usual, the specimen is submitted to the action of this stain for fifty or sixty minutes, then treated with Lugol's solution (official compound solution of iodin) for fifteen seconds and rinsed. A contrast stain is obtained by plunging the specimen for two or three seconds into an aqueous 1 per 1,000 safranin solution.

Revue de Gynécologie, Paris

September, XVII, No. 3, pp. 193-288

69 *Successful Amputation of Cervix Uteri for Tuberculosis. (Cas de tuberculose du col de l'utérus.) X. Bender.
70 Rupture of Vessels in Abdominal Contusions and Their Treatment. III. (Des ruptures vasculaires dans les contusions abdominales.) Ducuing and J. Florence.

69. **Tuberculosis of the Cervix Uteri.**—In Bender's case the tuberculous nature of the ulcerating lesion for which the cervix was amputated was not suspected until afterward. There was nothing in the history of the case before or since to suggest tuberculosis, but the histologic and bacteriologic findings confirmed the retrospective diagnosis. The patient was a woman of 32 in good health otherwise at the time and during the two years since. The case had seemed to be an ordinary ulcerating metritis consecutive to an abortion at the fourth month, after excessive horseback riding. The patient had previously borne two healthy children.

Semaine Médicale, Paris

October 18, XXXI, No. 42, pp. 493-504

71 *Traumatic Orchitis. (Doit-on admettre l'existence de l'orchite traumatique?) F. Moty.

71. **Traumatic Orchitis.**—Moty declares that even when a gonococcus epididymitis develops as a complication of rapid inflammation of the testicle following trauma, yet the diagnosis of traumatic orchitis must be maintained even under these circumstances. The danger of atrophy is as great as after a contusion; both require incision of the tunica albuginea in case of excessive pressure. The gonorrheal process will run its usual course. With spontaneous orchitis the affection subsides so quickly that there is no danger of confounding it with a gonorrheal process; the left testicle is more often involved in the spontaneous and traumatic form. The spontaneous orchitis is the result of some unusual physical exertion, the muscular strain causing an aseptic contusion of the testicle.

Berliner klinische Wochenschrift

October 16, XLVIII, No. 42, pp. 1873-1916

72 *Nascent Iodin in Therapeutics. (Methode zu therapeutischer Anwendung von Jod in statu nascendi in den Geweben.) A. Reyn.
73 *Iodin in Exanthematous Typhus. (Ueber Jodbehandlung des Typhus exanthematicus.) Uftugeaninoff.
74 Research on Anaphylatoxin. (Mechanismus der Anaphylatoxinbildung und Beziehungen zwischen Anaphylatoxin und Toxin.) E. Friedberger. (Ueber Anaphylatoxinbildung aus Milzbrandbakterien und den Einfluss des Milzbrandimmunserums auf die Giftbildung.) A. Schütze.
75 *Pressure Massage of Nerves. (Histologische und physiologische Wirkung der Druckmassage auf die Nerven.) M. Joffe.
76 Juvenile Hydrophthalmos. (Hydrophthalmus infantilis.) J. Fejer.
77 Traumatic Detachment of the Retina. (Traumatische Netzhautablösungen.) J. Fejer.
78 *Determination of Degree of Turbidity. (Ein neues Verfahren zur Messung der Trübung eines Mediums durch die Turbidometrie.) E. Schlesinger.
79 Indications for Interrupting a Pregnancy. (Indikationen zur künstlichen Unterbrechung der Schwangerschaft.) E. Runge.

72. **Therapeutic Electric Generation of Nascent Iodin.**—Reyn has applied in another way the two-route principle of treating superficial lesions. He gives potassium iodid by the mouth and applies the electric current to the spot; nascent iodin is generated in the lesion, exerting its therapeutic power to the full. The patient takes fasting 3 gm. (45 grains) of potassium iodid. Between one and two hours afterward the electricity is applied, the positive pole introduced into the skin while the negative pole wrapped in a wet pad is held in the hand. In Reyn's tentative experiments he applied a 2 milliampere current for two minutes or a 3 milliampere current for three minutes. As the iodin is generated only close to the needle, the therapeutic action is enhanced by using five needles, each 0.5 mm. in diameter, soldered to a metal plate at intercals of 0.5 mm. There is not much pain when the five needles are inserted, and it is thus possible to introduce from twenty to thirty needles before the current is turned off. He repeated the process two or three times on each patch of lupus and relates the details of the five cases in which this method has been tentatively applied. Reyn is the medical chief of the Finsen Light Institute at Copenhagen, and he thinks this two-route method may prove a useful adjuvant to or substitute for the Finsen treatment, especially when deep action is desired. It may also prove to have a field in treatment of cancer.

73. **Iodin in Exanthematous Typhus.**—Uftugeaninoff reports fourteen cases which added to Jaworowsky's forty-one brings to fifty-five the number of exanthematous typhus patients treated with tincture of iodin internally, three or four drops three or four times a day, taken in red wine. The disease was unmistakably modified by the medication and evidently much for the better in the entire group, he says.

75. **Massage of the Nerves.**—Joffe relates experimental research which demonstrated a markedly injurious action on nerve tissue from pressure such as is applied in the modern "pressure massage" treatment of neuralgia. Fifty-two experiments showed that the benefit in neuralgia is due to blocking of certain of the nerve fibers from degenerative processes. The centrifugal fibers seemed to suffer more than the centripetal.

78. **Turbidometric Tests of Milk, Blood and Other Fluids.**—The fluid in a very tapering wedge-shaped vial or glass is inspected through a narrow slit. As this slit is moved upward a point is reached where objects behind become visible through the fluid which is more or less opaque at the thick end of the wedge vessel. Schlesinger says that one is able thus to estimate the fat content of breast milk and market milk and detect admixture of water, to estimate the number of corpuscles in the blood, and, after destruction of the red corpuscles, to determine the proportion of whites.

Deutsches Archiv für klinische Medizin, Leipsic

CIV, Nos. 1-2, pp. 1-208. Last indexed November 4

80 Destruction of Hemoglobin in the Liver. (Hämoglobinzerstörung in der menschlichen Leber. Experimentelle Hyperglobulie.) L. Hess and P. Saxl.
81 *Heart-Block. (Ueber Reizleitungsstörungen am menschlichen Herzen.) A. W. Meyer.
82 Albumosuria. (Untersuchungen bei einem Falle von Bence-Jones'scher Krankheit.) R. Massini.
83 *Nephritic Edema. (Ueber nephritisches Oedem.) P. Schmid and K. Schlayer.
84 *Experimental Research on Influence of Preparation of Food on Its Digestibility. (Einfluss der Zubereitung der Nahrungsmittel auf ihre Verdaulichkeit.) F. Best.
85 Tension Time of the Heart. (Ueber die Anspannungszeit des Herzens.) A. Müller and P. Breuer.
86 Epinephrin Content of Adrenals. (Ueber den Adrenalingehalt der Nebennieren.) A. Ingier and G. Schmorl.
87 The Active Factors in the "Oatmeal Cure" for Diabetes mellitus. O. Baumgarten and G. Grund.

81. **Heart-Block.**—Meyer remarks that in many cases of heart-block on record outside of the Adams-Stokes syndrome, the disturbance was the result of the action of digitalis; he has seen a number of cases of this kind. In comparatively few is the disturbance the result of the heart disease itself. He reports a case in which the toxic influence of digitalis was strikingly apparent in the onset and blocking both between the auricle and ventricle and between the sinus and the auricle. In contrast to this he reports a case of the Adams-Stokes syndrome, the heart-block due to actual anatomic conditions, in which digitalis gave great benefit. The curves of these cases demonstrate anew the influence of digitalis on the automatically beating ventricle, regardless of whether this automatic action is the result of anatomic injury of the conducting bundle or of injury from the digitalis itself.

83. **Nephritic Edema.**—Schmid and Schlayer report experiments on rabbits in which nephritis had been induced by chromium or uranium, arsenic or cantharidin, until there was

complete anuria, and then salt solution was infused to study the development of edema. Changes in both vessels and tissues cooperate in the production of the edema in nephritis. Physical-chemical factors alone do not play such a prominent part in the process as has been hitherto assumed.

84. **Digestibility of Food.**—Best has been studying the influence of the mode of preparation of the food on its digestibility, using three dogs with retention cannulas at different points in the small intestine. It was found that addition of butter to bread and vegetables caused them to linger longer in the stomach and upper intestine, and thus be better utilized. Sugar, bread and potatoes sojourn only a brief time in the stomach and upper intestine while making the least demands on secretion. Flour gruels, meat and cream were always completely assimilated in the experiments, no residue reaching the cannulas. Raw fruit is digested to a soft mass before it reaches the large intestine, and Best thinks that the digestive apparatus will be spared just so much work if the fruit is cooked soft before being eaten. When the aspect or taste of the food stimulates the appetite, this starts secretory and motor reflexes which permit good digestion of the most widely diverse articles of food.

Deutsche medizinische Wochenschrift, Berlin

October 12, XXXVII, No. 41, pp. 1873-1920

88 Feeble-Minded Children. (Ueber den kindlichen Schwachsinn, seine Symptomatologie, Diagnose und Therapie.) J. Raecke.
89 Retroflexion of the Uterus and Trauma. (Retroflexio uteri und Unfall.) H. Fritsch.
90 *Edema in the Brain as Factor in Eclampsia. (Beitrag zur Auffassung und Behandlung der Eklampsie.) W. Zangemeister.
91 *Removal of Outer Wall of Orbit to Relieve Extreme Exophthalmos. (Druckentlastung der Augenhöhle durch Entfernung der äusseren Orbitalwand bei hochgradigem Exophthalmos—Morbus Basedowii—und konsekutiver Hornhauterkrankung.) J. Dollinger.
92 Regional Injection of Epinephrin for Study of Lymph Circulation. (Versuche zur klinischen Beobachtung der Lymphzirkulation der Haut.) Z. v. Dalmady.
93 *Color Test for Albumosuria. (Eine neue Methode zum Nachweis der Albumosen im Harn.) E. H. Fittipaldi.
94 Aniilin Dyes Not Very Reliable Reagents for Bile Pigment in Urine. (Ueber die Anwendbarkeit von Anilinfarben als Reagens auf Gallenfarbstoff im Harn.) O. V. C. E. Petersen.
95 Recurrent Paralysis and Differences in the Radial Pulse with Mitral Stenosis. (Zwei ungewöhnliche Nebenerscheinungen bei Mitralstenose.) Muktedir Effendi.
96 *Pregnancy as Cause of Disease of the Optic Nerve and Retina. (Ueber die Gravidität als Ursache der Erkrankung des Sehnerven und der Netzhaut.) W. Dolganoff.
97 Intermuscular Lipoma. R. Herzenberg.
98 Salvarsan in Kala-Azar. (Zur Kasuistik der Kala-Azar und seiner Behandlung mit Salvarsan.) G. Caryophyllis and D. Sotiriades.

90. **Eclampsia a Reflex Epilepsy.**—Zangemeister treats eclampsia on the assumption that it is the result of pressure from edema in the brain. The pressure is immensely increased during the strain of each labor pain, the condition being an actual "glaucoma of the brain" with epileptiform seizures as the consequence. By prompt trephining the brain is relieved from pressure. He has acted on this assumption in three extremely severe cases of eclampsia persisting after delivery, the temperature, pulse and general condition giving a grave prognosis. A bone flap was turned back on the right side of the skull, above and behind the temple. The dura was found hard and tense, the pressure so great that there was no pulsation. Large amounts of serous fluid escaped when it was incised and fluid continued to flow for a long time. Diuresis soon set in and sweating, and the convulsions were milder and occurred at longer intervals or affected only a smaller group of muscles or assumed more the form of tonic rigidity. Two of the patients recovered but the third succumbed the sixth day although the eclampsia had long subsided. Temperature and pulse began to climb up again, with intense headache and hyperesthesia. This was the only case in which the dura had been sutured again after the operation leaving only a minute opening; the edema may have recurred, with resulting compression and anemia of the brain. Edema of the brain has rarely been found at necropsy of persons dying in eclampsia; the edema probably subsides rapidly after death. We know that labor contractions induce reflex vessel spasms in other organs, and that eclampsia seems to be limited to periods of labor, consequently it is rational to assume that the labor contractions may induce spasm of the cerebral vessels, inducing anemia which in turn entails the convulsions. A normal brain bears the reflex changes in pressure in the brain without harm, but a brain already suffering from the effects of edema responds with convulsions. The benefit from the trephining is not immediate; it takes some time for the pressure and circulation to adjust themselves to the change in conditions, especially when—as in his cases—only one side of the brain was operated on.

91. **Resection of Orbit to Relieve Exophthalmos.**—Dollinger reports with illustrations a case of exophthalmos so severe that the cornea of the left eye became ulcerated and the patient, a man of 62, suffered from intense pain in the eyes and head, rebellious even to morphin. There were no other symptoms of Basedow's disease. By resecting a wedge from the outer wall of the orbit, the eye-ball sank more to the side, relieving the forward protrusion and enabling the lids to close over the cornea. The pains subsided and the corneal ulcer soon healed.

93. **Test for Albumose in the Urine.**—Fittipaldi mixes the specimen of urine with six times the amount of alcohol. The next day the alcohol is decanted, the sediment dissolved in as little as possible of a solution of sodium hydroxid (31 to 32 per cent.), and the alkaline solution is tested with the ammoniacal solution of nickel. This reagent is a mixture of equal parts ammonia water and a 5 per cent. solution of nickel sulphate. It is bluish, but when a drop of this reagent is added to the alkaline mixture above, the tint changes to orange in the presence of albumose or peptone. The method can be applied to the blood, first heating to boiling after it has been well mixed with animal charcoal (10 or 20 gm. to 10 or 20 c.c. of blood). The filtrate after cooling is mixed with six times the amount of alcohol as above. This method does not require preliminary removal of the albumin from urine and there is no possibility of confusion with albumin, as the latter never gives the orange reaction.

96. **Disease of the Optic Nerve and Retina Connected with Pregnancy.**—Dolganoff insists that when the pregnancy alone is responsible for the ocular disturbances, expectant treatment should be the rule, and he reports a case in which a young woman had suddenly become almost totally blind in the third and fourth months of her first pregnancy. Except for recurring headache she seemed otherwise healthy. She was kept in bed and given dry sweats and hot baths every two or three days, with iodin, and improvement gradually followed. The assumption seems plausible that some toxic substances were produced during the first months of the pregnancy and that they had some special affinity for the optic nerve. Later the organism adapted itself to the condition, possibly aided in this by the treatment adopted, and in the course of the next two or three months all the functioning and excreting apparatus came into good working order and all disturbances subsided. The case teaches that when an internist, gynecologist, syphilologist and neurologist—all these specialists were consulted in this case—can find nothing to explain the optic neuritis or retinitis, the trouble can be ascribed to the pregnancy alone and probably can be safely left to time.

Medizinische Klinik, Berlin

October 15, VII, No. 42, pp. 1605-1644

99 Summer Heat and Other Factors in Infantile Mortality. (Einfluss der Hitze auf die Sterblichkeit der Säuglinge.) H. Liefmann and A. Lindemann.
100 Röntotherapy of Skin Diseases. (Gefahren der Röntgentherapie der Hautkrankheiten.) F. Zinsser.
101 Case of Traumatic Thrombosis of the Axillary Vein. E. Ruge.
102 Technic for Irrigation of the Urethra. (Ueber Janetsche Harnröhrenspülungen und eine neue Kanüle zur erfolgreichen Ausführung derselben.) L. Dufaux.
103 United Twins or Girl with Two Spines Living Till Puberty. (Ueber einen Pantopagus.) J. Linke.
104 Aggressins in Filtrate as Test for Tubercle Bacilli. (Ueber den Nachweis kleiner Mengen von Tuberkelbacillen vermittels Filtrataggressin.) P. Asch.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

October, XXXIV, No. 4, pp. 397-512

105 Pathologic Anatomy of Endometritis. H. Albrecht.
106 Shall Retained Fragments of Placenta Be Removed or Not? (Soll man Placentarreste nach reifer Geburt entfernen oder nicht?) K. Hörmann.

107 Decapsulation of the Kidneys in Treatment of Eclampsia: Eleven Cases. (Behandlung der Eklampsie mit Entkapselung der Nieren.) C. Longard.
108 *Differential Diagnosis of Extra-Uterine Pregnancy and Its Management. (Ueber die ektopische Schwangerschaft und über die differentialdiagnostischen Schwierigkeiten derselben.) D. v. Velits.
109 *Relations Between Myoma in the Uterus and the Circulation. (Beziehungen zwischen Uterusmyom und Kreislauf.) A. Patta and C. Decio.
110 *Treatment of Myoma in the Uterus. (Zur Behandlung der Uterusmyome.) R. Marek.

108. Differential Diagnosis of Extra-Uterine Pregnancy.—Velits reviews his experience with fifty-two cases; it has convinced him that every large hematocele from this cause should be regarded from the same point of view as a malignant growth, but with a dubious diagnosis expectant treatment should be the rule. In no other morbid condition is the previous history so important as in the diagnosis of extra-uterine pregnancy. And even this may be misleading at times. His various cases are grouped and typical ones discussed in detail. One case of multiple myoma in the uterus simulated deceptively an extra-uterine pregnancy; a normal pregnancy in another case was masked by a myoma in the uterine cervix, conditions suggesting extra-uterine gestation, as also an ovarian tumor impacted in the pouch of Douglas with a normal pregnancy in two other cases. Delivery was normal in one case but the fetus died during labor in the other. On the whole, the data cited confirm the wisdom of expectant treatment until the diagnosis is certain.

109. Myomas and the Circulation.—Patta and Decio injected dogs with extracts from nine myomas and also extract of uterus tissue. The myoma extract seemed to have a pronounced action on the circulation in some respects, inducing bradycardia, palpitation and asthma in the animals, but no influence on the blood-pressure could be detected, unless possibly a depressing influence.

110. Operative Treatment of Uterine Myoma.—Marek reviews the outcome in 247 cases of myoma in women from 25 to 62 years old, all but sixty-two being given operative treatment. There was complicating carcinoma in three and sarcoma in two cases. Comparing this material with others of the kind on record, he says that supravaginal amputation with removal of the adnexa gives the best permanent results with the lowest mortality; 2,091 operations with 3.2 per cent. mortality. Even taking into account the danger of cancer of the stump (0.5 per cent. to date), the ultimate outcome is better than with hysterectomy which has a record of pulmonary edema and septic peritonitis five and six times larger than with supravaginal amputation, and the total mortality 2.6 per cent. larger. He would restrict hysterectomy to cases suspicious of cancer, to myoma of the cervix, and to complicating suppuration in the adnexa, and in all cases remove the uterus by abdominal section. Roentotherapy should be given a trial when operative treatment is refused or contra-indicated or when the hemorrhagic myoma is in a patient near the menopause. Roentotherapy may also possibly prove useful as a preliminary to operative treatment when the patient has lost excessive amounts of blood.

Münchener medizinische Wochenschrift

October 10, LVIII, No. 41, pp. 2145-2200

111 Experiences at Kiel with Salvarsan. (Unsere bisherigen Erfahrungen mit Salvarsan.) V. Klingmüller.
112 Alimentary Fever in Adult. (Alimentäres Fieber beim Erwachsenen.) G. Walterhöfer.
113 Acetonuria in Diphtheria and Acute Angina. (Azetonurie bei Diphtherie und akuten Halsentzündungen.) F. Reiche.
114 *Preoperative Injection of Blood in Anemic Patients. (Eine anteoperative Vorbehandlung hochgradiger Anämien durch intramuskuläre Injektionen von defibriniertem Menschenblute.) P. Esch.
115 Vaccine Therapy of Gonorrhea. (Die spezifische Behandlung der Gonorrhoe, mit bes. Berücksichtigung der Zervixgonorrhoe.) A. Schmitt.
116 Disease of Air Passages Contra-Indicates Scopolamin. (Ursache der Skopolaminasphyxien.) O. Klauber.
117 *Rapid Technic for Determination of Tuberculosis by Inoculation of Animals in the Liver. (Tuberkulosenachweis durch beschleunigten Tierversuch.) R. Oppenheimer.
118 Plastic Operation on Lower Lid with Flap from Inside of Upper Lid. (Verfahren für den plastischen Ersatz des Unterlides.) Köllner.
119 Salvarsan in Syphilis. (Beitrag zur Salvarsanbehandlung der Syphilis.) Favento.
120 The Literature on Salvarsan. (Bemerkungen zur Salvarsanliteratur.) Laquer.
121 Streptococcus Infection in General, and Especially with Abortions. (Streptokokken-Aborte und ihre Behandlung.) H. Schottmüller. Commenced in No. 39.

114. Injection of Blood Preliminary to Operations.—Esch refers in particular to extremely anemic and weak patients with hemorrhagic uterine myomas. They need myomectomy at once and yet their resisting powers are at a dangerously low ebb. In order to improve conditions he injected defibrinated blood in two cases; three injections of 20, 15 and 30 c.c. and 15, 20 and 22 c.c. of the defibrinated blood in the course of fourteen days, improving the condition to such an extent that the hysterectomy was then safely performed. The hemoglobin rose from 25 to 46, and from 23 to 36 per cent., the improvement parallel in both cases and evidently strictly connected with the injections.

117. Improved Technic for Diagnostic Inoculation of Animals with Tuberculous Material.—Oppenheimer injects the suspected urine directly into the liver of the guinea-pigs, and has found that specific lesions develop in about sixteen days, confirming the diagnosis. The findings were constantly positive in the seventeen animals injected with tuberculous material while they were constantly negative in the twenty-three in which the urine was derived from individuals free from tuberculosis. The liver not only develops the specific lesions remarkably early, but its structure permits their recognition in an incipient phase easier than in any other tissues. Of the six animals not slaughtered at the end of sixteen days, three died after thirty-one days and three others after thirty-five, all with signs of extensive tuberculosis, showing that this intrahepatic technic is a powerful mode of inoculation. The guinea-pig liver is peculiarly accessible. He introduced the needle at two points close together, just below the sternum, pointing the tip upward toward the right and toward the left.

Wiener klinische Wochenschrift, Vienna

October 12, XXIV, No. 41, pp. 1419-1454

122 Reduced Alkalinity of Blood in Uremia, Diabetic Coma and After Death. (Weiterer Beitrag zur Hydroxylionenkonzentration des pathologischen Blutes.) C. Kreibich.
123 Anatomy and Histology of the Female Urethra. (Beiträge zur Anatomie und Histologie des weiblichen Urethralwulstes.) O. Sachs.
124 Diuresis Under Calomel. (Klinische und experimentelle Studien über Kalomeldiurese.) R. Fleckseder.
125 Serodiagnosis and Treatment of Scleroma. E. Suess.
126 Cancer from Standpoint of Physical Sciences. (Naturwissenschaftliche Gedanken über den Krebs.) E. Zirm.
127 Cell Inclusions in Spring Catarrh. (Mikroskopische Befunde bei Frühjahrskatarrh.) A. Botteri.

Zentralblatt für Chirurgie, Leipsic

October 14, XXXVIII, No. 41, pp. 1369-1400

128 Invagination of Stumps in Suturing Severed Ureter. (Eine neue Methode, die Enden eines durchschnittenen Ureter zu vereinigen.) W. Forssell.

Zentralblatt für Gynäkologie, Leipsic

October 14, XXXV, No. 41, pp. 1425-1448

129 *Laparotomy During Labor with Placenta Prævia. (Während der Geburt durch Laparotomie behandelte Placenta praevia-Fälle.) E. Scipiades.
130 Operative Treatment of Retroflexion of the Uterus. (Wie sollen wir die Retroflexion operieren?) G. Bamberg.

129. Laparotomy for Placenta Prævia.—In the first two of the three cases reported the patients were elderly primiparæ and after considerable hemorrhage the child was removed by Cesarean section and both mothers and children were dismissed in good condition, with nothing to interfere with future pregnancies. The third patient was a woman of 40 at term with her eighth pregnancy, faint from excessive losses of blood, the fetus dead. The abdomen was opened and the uterine arteries ligated and ligaments tied off. The pulse began to improve at once, and supravaginal amputation of the unopened uterus was rapidly done and the patient was replaced in a warm bed, the pelvis raised.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 3, XXXII, No. 119, pp. 1259-1266

131 *Intradermal Reaction in Syphilis. (Sulla diagnosi della sifilide mediante la intradermoreazione.) A. Fontana.

October 5, No. 120, pp. 1267-1274

132 *Autoserotherapy of Peritonitis Plus Iodid Therapy. (Contributo alla cura delle sierositi col metodo Gilbert combinato alla terapia iodica.) E. Cariani.

October 8, No. 121, pp. 1275-1290

133 Physiology of Secretion of Urine. II. F. Bottazzi.
134 Total Inversion of the Uterus; Two Cases. (Sull'inversione dell utero.) M. Fasano.

October 10, No. 122, pp. 1291-1298

135 Scarlatinal Uremia; Recovery After Lumbar Puncture. (Caso di uremia scarlattinosa curato con la puntura lombare.) G. B. Allaria.

131. **Diagnostic Intradermal Reaction in Syphilis.**—Fontana has experimented with various substances, sodium glycocholate, lecithin, etc., injecting them into the skin by the intradermal technic. None proved reliable for eliciting a specific reaction except a glycerin extract of syphilitic livers or superficial lesions. Scraps of a condyloma lata, swarming with spirochetes, were triturated with five times their weight of neutral glycerin and after standing for ten days in a cool place the fluid was filtered and distributed in vials fused and kept at 56 C. (132.8 F.) for an hour on three successive days and then set aside in a cool place again for two months when the "syphilin" was ready for use. In sixty-seven tests, the syphilin gave positive findings in 47.5 per cent. of the cases while the Wassermann reaction was positive in 85 per cent.; in the primary and tertiary phases the two reactions constantly paralleled each other. The method is thus not without value and when the technic is further perfected may prove important.

132. **Autoserotherapy in Serositis.**—Cariani expatiates on the good results attainable by reinjection of some of the patient's own effusion, Gilbert's method, especially when supplemented by local iodin treatment.

Policlinico, Rome

October 8, XVIII, No. 41, pp. 1289-1320

136 Salvarsan in Syphilis. G. Burzi and De Favento.

October 15, No. 42, pp. 1321-1352

137 Serotherapy of Gonorrhea. (Sull'azione curativa del siero antigonococcico.) V. Fisichella.
138 *Extraserous Transposition of Testicle in Treatment of Hydrocele. (L'eversione della vaginale del testicolo nella cura dell'idrocele.) A. Cernezzi.

138. **Eversion of the Tunica Vaginalis in Treatment of Hydrocele.**—Cernezzi has applied the Longuet technic for extraserous transposition of the testicle in nineteen cases since 1903, bilateral in three, with prompt and permanent relief. He emphasizes the necessity for making the incision over the upper pole of the tumor as thus the lips of the serosa can unite better afterward and form the sheath for the cord. Also that a silk suture before the catgut suture holds the parts in place better. He also warns against the slightest unnecessary torsion of the testicle, and adds that it is unnecessary to drain.

Riforma Medica, Naples

October 9, XXVII, No. 41, pp. 1121-1148

139 Experimental Anaphylaxis from Gastric Juice in Diagnosis of Cancer. (Ancora sulla anafilassia da succo gastrico.) S. Livierato.
140 Experimental Research on Pharmacologic Action of Salvarsan. III. (Ricerche sperimentali sull-azione farmacologica del Salvarsan.) L. Ferrannini.

Ugeskrift for Læger, Copenhagen

October 12, LXXIII, No. 41, pp. 1485-1532

141 *Anatomic Conditions with Anemia and Other Diseases of the Blood. V. Ellermann.

141. **Possible Infectious Origin of Pernicious Anemia.**—Ellermann discusses the typical changes in the marrow in the long bones, the myeloid changes in the spleen and liver, the gastritis and the secondary fatty degeneration and siderosis or excess of iron. None of these changes is characteristic exclusively of progressive anemia and all of them may develop in consequence of the action of some toxin. The resemblance between the morbid anatomy of pernicious anemia and that of myeloid leukemia is striking. Another notable resemblance between them is in the remissions in the disease. Irregular fever may also accompany both these conditions and the prognosis is equally grave for both. His research on fowl leukemia has shown still further resemblance between the two and has demonstrated that the leukemic changes in the blood are not the essential feature of the disease as they were often lacking in the early stages and sometimes disappeared during the course of the disease, and in certain instances never developed at all, although the marrow, spleen and liver showed the characteristic changes. In other cases there was merely intense anemia and changes in the bone marrow. He has encountered also in the clinic these same three forms, namely, the true leukemic, the pseudoleukemic and the anemic. The last mentioned form has so many points in common with pernicious anemia that he is inclined to regard the latter as the extreme type of the former. Arnsperger has reported an epidemic of five cases of myeloid leukemia in a small district and five other cases in which the clinical picture seemed to be the same but no examination was made of the blood. Bie has also reported two cases of myeloid leukemia in a family and Weil and Gilbert have reported pernicious anemia in two brothers and the child of one, and Patek no less than five cases in one family. The general conclusion from Ellermann's research is that as an infectious origin is now accepted as possible for leukemia, especially the myeloid form, the same etiology may be accepted for progressive pernicious anemia. This assumption would explain the remissions and latent phases, as in malaria and syphilis; also that the only possibly efficient drug seems to be the parasiticidal arsenic, and the reason it proves ineffectual at times is because the parasites become proof against the drug, just as trypanosomes may become arsenic-proof. If the gastritis is assumed to be the first cause of the disease this does not explain the origin of the gastritis. That anemia can be an infectious syndrome is shown by Carré and Vallé's report in regard to a filterable virus as the cause of anemia in horses, and that of Trincas' for the anemia of dogs, while Ellermann's own research has demonstrated a filterable virus as the cause of fowl leukemia.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A TEXT-BOOK OF PATHOLOGY. With a Final Section on Post-Mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M.D., LL.D., Emeritus Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. Mitchell Prudden, M.D., LL.D., Emeritus Professor of Pathology, College of Physicians and Surgeons, Columbia University; New York. Ninth Edition. Cloth. Price, $5.50 net. Pp. 1114, with 687 illustrations. New York: William Wood & Co., 1911.

ELECTRICITY: ITS MEDICAL AND SURGICAL APPLICATIONS, INCLUDING RADIOTHERAPY AND PHOTOTHERAPY. By Charles S. Potts, M.D., Professor of Neurology, Medico-Chirurgical College, Philadelphia. With a Section on Electrophysics by Horace Clark Richards, Ph.D., Professor of Mathematical Physics in the University of Pennsylvania, and a Section on *X*-Rays by Henry K. Pancoast, M.D., Professor of Röntgenology in the University of Pennsylvania. Cloth. Price, $4.75 net. Pp. 509, with 356 illustrations. Philadelphia: Lea & Febiger, 1911.

A HANDBOOK OF MEDICAL DIAGNOSIS IN FOUR PARTS. I. Medical Diagnosis in General. II. The Methods and Their Immediate Results. III. Symptoms and Signs. IV. The Clinical Applications. For the Use of Practitioners and Students. By J. C. Wilson, A.M., M.D., Professor of the Practice of Medicine and Clinical Medicine in the Jefferson Medical College, Philadelphia. Third Edition. Cloth. Price, $6. Pp. 1438, with 418 illustrations. Philadelphia: J. B. Lippincott Co., 1911.

DISEASES OF INFANTS AND CHILDREN. By Henry Dwight Chapin, A.M., M.D., Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital, and Godfrey Roger Pisek, M.D., Professor of Diseases of Children, University of Vermont. Second Edition. Cloth. Price, $4.50 net. Pp. 636, with 181 illustrations. New York: William Wood & Co., 1911.

ORTHOPEDIC SURGERY. By Edward H. Bradford, M.D., Surgeon to the Boston Children's Hospital, and Robert W. Lovett, M.D., Associate Surgeon to the Boston Children's Hospital. Cloth. Price, $3.50 net. Pp. 410, with 364 illustrations. New York: William Wood & Co., 1911.

OPERATIVE OBSTETRICS, INCLUDING THE SURGERY OF THE NEW BORN. By Edward P. Davis, A.M., M.D., Professor of Obstetrics, Jefferson Medical College, Philadelphia. Cloth. Price, $5.50 net. Pp. 483, with 264 illustrations. Philadelphia: W. B. Saunders Co., 1911.

MANUAL OF PHYSIOLOGY FOR STUDENTS AND PRACTITIONERS. By H. Willoughby Lyle, M.D., B.S., F.R.C.S., Assistant Ophthalmic Surgeon to King's College Hospital, London. Cloth. Price, $4. Pp. 447, with 135 illustrations. New York: Oxford University Press, 1911.

THE FOURTH PHYSICIAN. A Christmas Story. By Montgomery Pickett. Illustrated by Gordon Stevenson. Cloth. Price, $1 net. Pp. 144, with illustrations. Chicago: A. C. McClurg & Co., 1911.